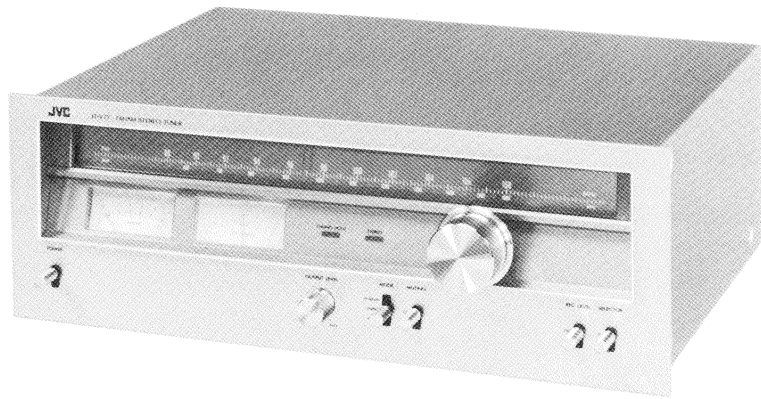
JVC

SERVICE MANUAL

MODEL JT-V77
STEREO TUNER



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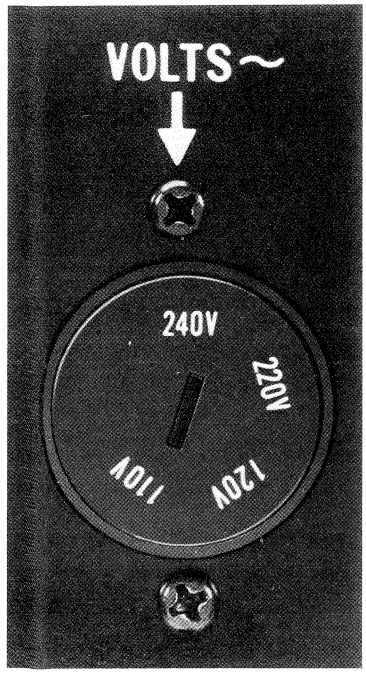


This SET is switchable to the line voltage of 110, 120, 220 and 240 volts AC; 50/60 Hz.
The changeover switch is placed on the rear panel of the set.
To select another voltage, turn the changeover switch with a screwdriver or coin.

But for the U.S.A. and Canada, the set has no changeover switch, and fixed only for the 120 volts AC; 50/60 Hz.

Warning!
When replacing the parts marked with ⚠ in the schematic diagram, be sure to use the designated parts to ensure safety.

1. Specifications

FM TUNER SECTION

		MONO	STEREO
Tuning Range		87.6 MHz – 108 MHz	
Usable Sensitivity		1.8 μV (10.3 dBf)	–
50 dB S/N Sensitivity		3.8 μV (16.8 dBf)	38 μV (36.8 dBf)
Image Response Ratio		90 dB	–
IF Response Ratio		95 dB	–
Spurious Response Ratio		95 dB	–
RF Intermodulation		65 dB	–
Capture Ratio		1.0 dB	–
Alternate Channel Selectivity		75 dB	–
AM Suppression Ratio		60 dB	–
Distortion	100 Hz	0.1 %	0.15 %
	1 kHz	0.08 %	0.1 %
	6 kHz	0.15 %	0.15 %
Intermodulation Distortion		0.05 %	0.08 %
Signal to Noise Ratio		78 dB	72 dB
Stereo Separation	100 Hz	–	45 dB
	1 kHz	–	50 dB
	10 kHz	–	40 dB
Subcarrier Product Ratio		–	70 dB
SCA Rejection Ratio		–	70 dB
Muting Threshold		10 μV (25.2 dBf)	10 μV (25.2 dBf)
Frequency Response		50 Hz – 10 kHz	± 0.3 dB
		30 Hz – 15 kHz	+ 0.3 dB - 0.8 dB
Deemphasis		50 μsec./75 μsec.	
Output Level	Variable Out	0 – 1.3 V/2.5 kΩ	
	Fixed Out	750 mV/2.5 kΩ	
	Rec. Level	Correspond to 50 % FM mod.	
Antenna Input Impedance		75 Ω unbalanced 300 Ω balanced	

AM TUNER SECTION

Tuning Range		525 kHz – 1 605 kHz
Usable Sensitivity		300 μV/m (Bar antenna) 50 μV (External antenna)
Image Response Ratio		45 dB
IF Response Ratio		45 dB
Spurious Response Ratio		45 dB
Selectivity		45 dB
Signal to Noise Ratio		50 dB
Distortion		0.5 %
Output Level	Variable Out	0 – 800 mV/2.5 kΩ
	Fixed Out	450 mV/2.5 kΩ

DIMENSIONS 6-1/4"(H) x 17-3/4"(W) x 13-1/2"(D)
(15.8 cm x 45.0 cm x 37.5 cm)

WEIGHT 13.9 lbs. (6.3 kg)

POWER SPECIFICATIONS

Designated Areas	Line Voltage & Frequency	Power Consumption
U.S.A.	AC 120 V, 60 Hz	10 W
CANADA	AC 120 V, 60 Hz	10 W
U.K., AUSTRALIA	AC 240 V∿, 50 Hz	10 W
CONTINENTAL EUROPE	AC 220 V∿, 50 Hz	10 W
OTHER AREAS	AC 110/120/220/240 V Selectable 50/60 Hz	10 W

2. Features

- Innovative FM signal demodulation by PTL (phase tracking loop)
  The PTL operational characteristics are superior in stability, linearity and elimination of interference.
- Pilot cancel circuit upgrades reproduction quality
  A highly-integrated circuit incorporates the pilot cancel circuit, the NFB decoder and the PLL (generating switching signals).
- FM automatic tuning hold circuit
  The demodulator feeds its output back into the front-end local oscillator, and the tuner will be locked to that frequency being received.
- Combination of one-resonator type ceramic IF filter and four-resonator type makes the group delay characteristic flat with a high selectivity. Each ceramic filter has a reversed delay characteristic, so that their cancellation effect makes the group delay characteristics flat.
- REC LEVEL calibrator, convenient for adjusting accurate recording level preset.
- Electronic double-action type FM muting circuit
- Front-panel output level control
- Illuminated, frequency-linear dial scale a full 260 mm
- Coaxial antenna connector for coaxial cable connecting to FM aerial with accurate impedance.

3. Explanation of New Technology

3-(1) Phase Tracking Loop (PTL) FM Discriminator

A variety of circuitries have been applied to discriminators and various type of tuners incorporating these discriminators have been marketed. Progress is being made in circuit integration of the discriminator and IF limiter portion as the IC to secure their stability and reliability. The quadrature discriminator is mainly employed for such ICs because of its stability and productivity today. Common ICs currently on the market are basically designed for quadrature type.

In the developement of the tuner, unlike other audio equipment, stress is laid on raising the degree of harmony between high fidelity and selectivity. One solution to this dilemma is to make the selectivity manually switchable between "narrow" and "wide". However it is not a direct solution to improving the degree of harmony but it seems marketably acceptable.

The main emphasis in developing a tuner is to devise a discriminator circuit that is provided with both wide frequency response and high interference rejection capability. Several approaches have been made toward reaching this ultimate goal.

JVC has already succeeded in developing the high performance PLL (Phase Locked Loop) discriminator that is scarcely affected by variations in environment or in aging. The tuner incorporating the PLL discriminator has been made available to the general public as a proposal of a course for developement of tuner circuit. The recent developement of the PTL (Phase Tracking Loop) discriminator pursues this prescribed course. The PTL discriminator, incorporated within the JT-V77, functions as described below.

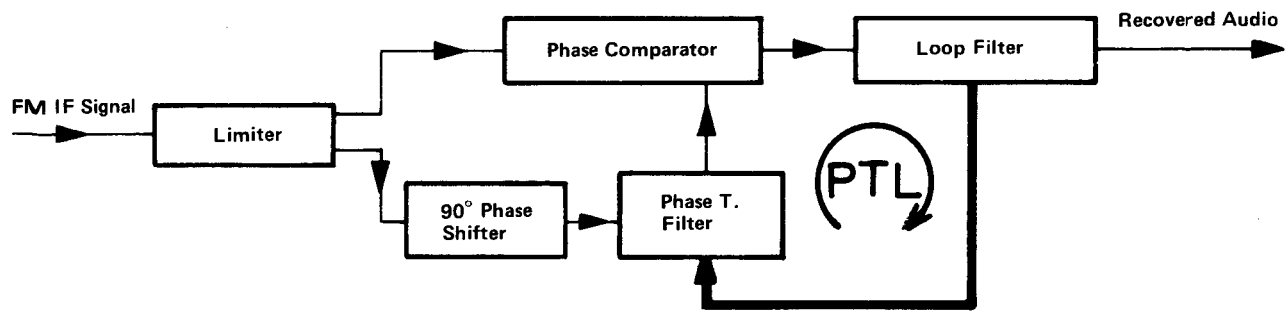


Fig. 1

The input signal to the discriminator is the FM IF signal (10.7 MHz). As shown in fig. 1, it first enters the limiter that trims the signal amplitude components. The limiter's output is divided into two paths: one directly goes to the phase comparator, the other passes the 90 degree phase shifter and tracking filter and enters the phase comparator. The phase comparator compares the phases of the two signal components and produces an error voltage in accordance with the phase difference detected.
The loop filter separates the desired components from the error signal that includes high frequency components such as the IF or its harmonics. The loop filter's output is the recovered signal which is delivered to the following MPX decoder. At the same time the recovered signal from the loop filter drives the phase tracking filter so that its center frequency follows the phase variation of the FM input signal.

The loop formed by the phase comparator, loop filter and phase tracking filter is called the PHASE TRACKING LOOP (PTL).

The phase-tracking response of the loop to the input signal is improved as the loop gain is raised. When the delay of the response is reduced ultimately to zero, the circuit becomes the Phase Locked Loop (PLL).
As the loop gain is reduced, on the contrary, the delay of the response to phase changes of the input signal increases. when the phase tracking loop becomes insensitive to phase changes, the circuit operates as the Quadrature discriminator. These different configurations are shown in Fig. 2.

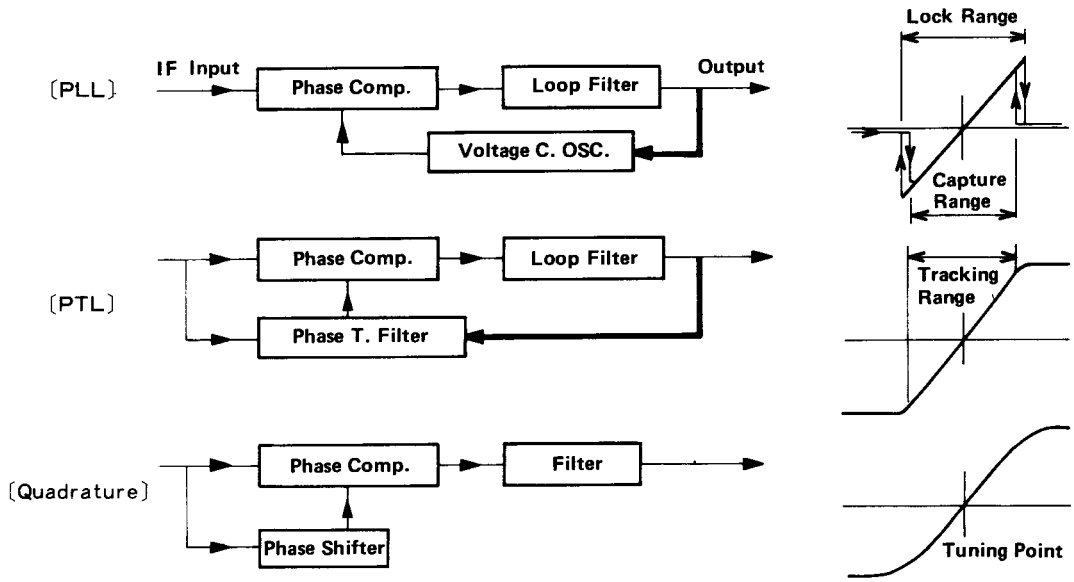


Fig. 2

Thus the PTL discriminator, taking the middle of the road between the PLL and Quadrature, can be converted to any of the discriminator by varying its loop gain.
And the PTL has a advantage other than the PLL discriminator, which is no oscillator incorporated, so that no noise source is included in the loop and no affection of its harmonics to the preceding stage of the tuner. The level of noise entering the phase comparator will be reduced by making the resonance curve of the tracking filter steep. Stable and high performance can be obtained by optimizing the loop gain.

The features of the PTL discriminator summarized below:

*High signal to noise ratio and low distortion.
Since the linearity of discrimination (differential gain characteristics) is determined by the loop response, this discriminator can operate with high S/N and low distortion in a wide range merely because its tracking filter is suitably designed.

*Stable FM demodulation
The feedback loop secures stable operation over a long period, maintaining a well tracking condition by absorbing variations due to changing temparature and aging.

*Signal to noise ratio improved for weak input
The FM threshold level is improved because of its feedback operation, and the S/N is high even when the input signal is weak.

*Excellent interference rejection
The combination of the loop filter and tracking filter is excellent in eliminating interference.

*Excellent AM suppression
The capability of AM suppression is proportional to the response of loop. AM components generated by interference or multipath distortion will be suppressed.

3-(2) Auto Tuning Hold Circuit

Refering to the block diagram Fig. 3, the Auto tuning hold circuit operates in the following way:

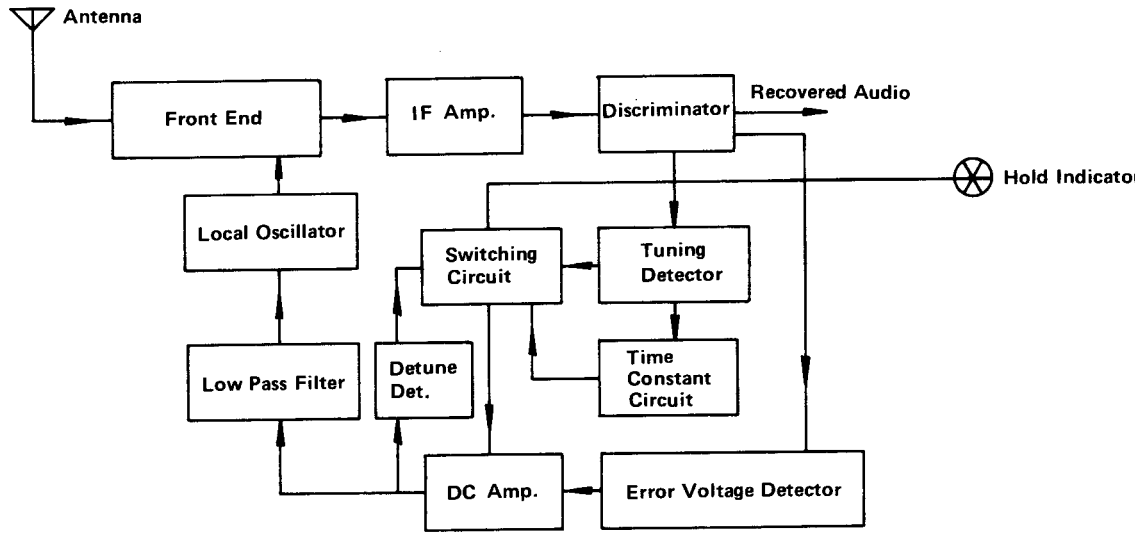


Fig. 3

When the tuner has been tuned to a desired station, the discriminator delivers a detection signal which swings tuning meter. The tuned-state detecter swithches to "hold" with a delay determined by the time constant circuit, and it turns DC amplifier on. This amplifies the error voltage generated from the discriminator's output. The bandwidth of the error voltage will be limited by the detector. The low pass filter will pass the DC component to drive the local oscillator. Thus the auto tuning hold circuit not only keeps the tuner from drifting out of tune but facilitates tuning operation. Fig. 4 compares the operating characteristics of ordinary tuning, conventional AFC and Tuning Hold circuit operations.

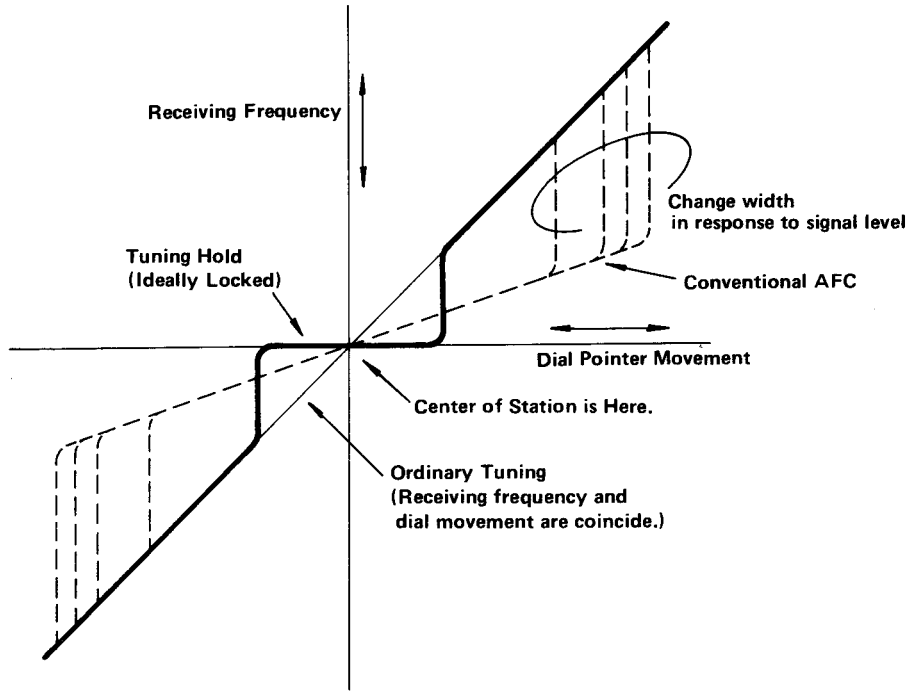


Fig. 4

When the circuit is activated continuously, it is somewhat difficult to tune in precisely to a desired frequency. The auto tuning hold circuit is automatically activated one moment after precise tuning is completed. When detuning the tuner, the tuning hold circuit will be deactivated. The operational feeling of tuning is therefore that of ordinary tuning.

4. Main Parts Location and Part Numbers

Refer page 7 for removal of the cover.

Top View

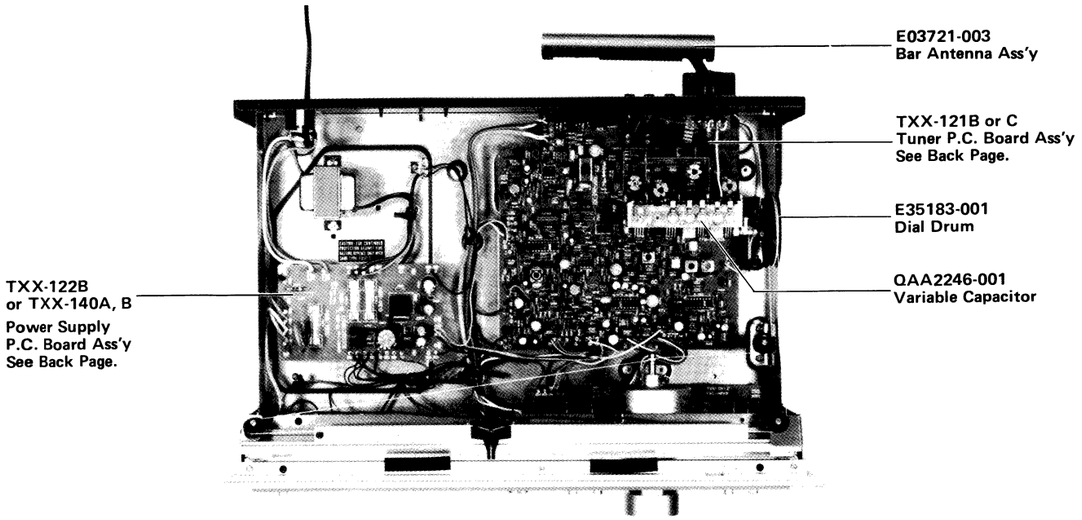


Fig. 5

Bottom View

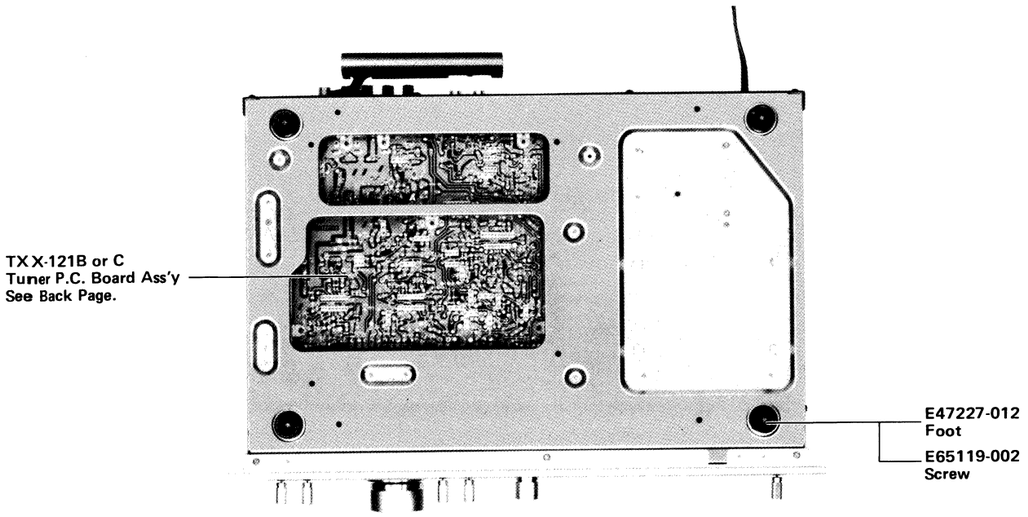


Fig. 6

5. Dial Stringing and Removal of Meters, Lamps and Tuning Knob

5-(1) Dial Stringing

Turn the tuning capacitor so that its plates are completely closed (maximum capacity) first. Then start dial stringing following the diagram below.

In following the 3 procedures in the diagrams, Ⓘ put the string through the spring loop, Ⓘ tie the string in a knot having an indicated remaining length, finally Ⓘ begins to string the dial following the 1, 2 3. . . . sequence in diagram as shown.

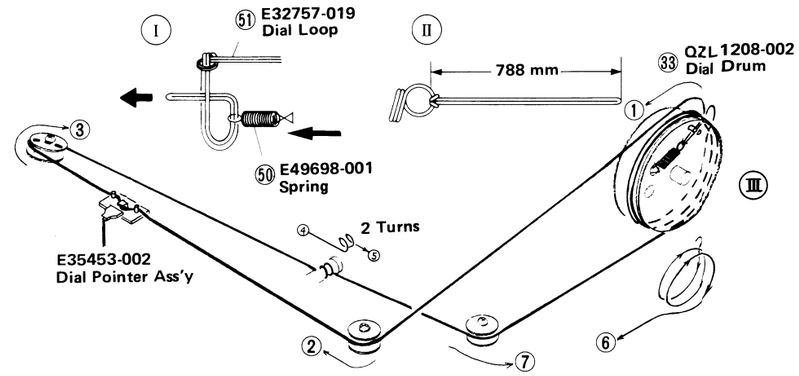


Fig. 7

5-(2) Removal of Meters and Lamps

1. To remove the meters, lift the meter holder in the direction of ② , while pressing it in the direction of ① .
2. Slowly pull the meters backwards to remove.
3. To replace the lamps pull the plastic rivet (Item No. 72) so that the Lamp P.C. Board Ass'y (Item No. 24) can be removed.

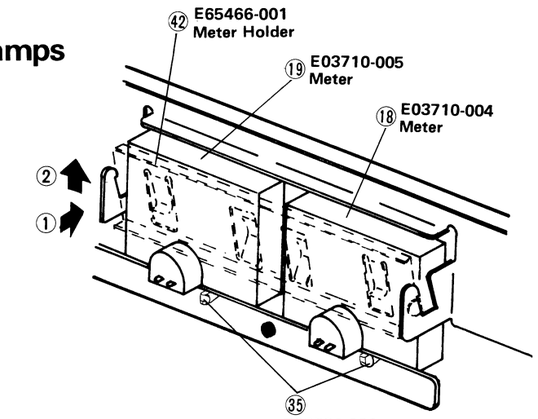


Fig. 8

5-(3) Removal of Tuning Knob

1. Untighten the set screw of the tuning knob by the use of hexagonal wrench turning counter-clockwise.
2. Slowly pull the tuning knob forward to remove.

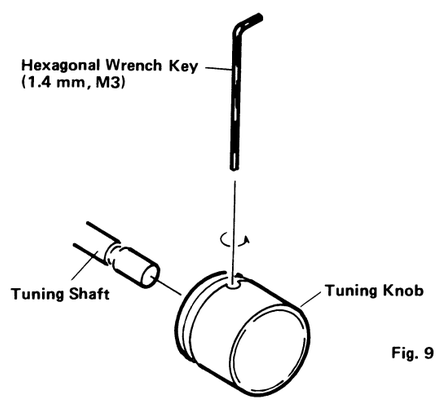
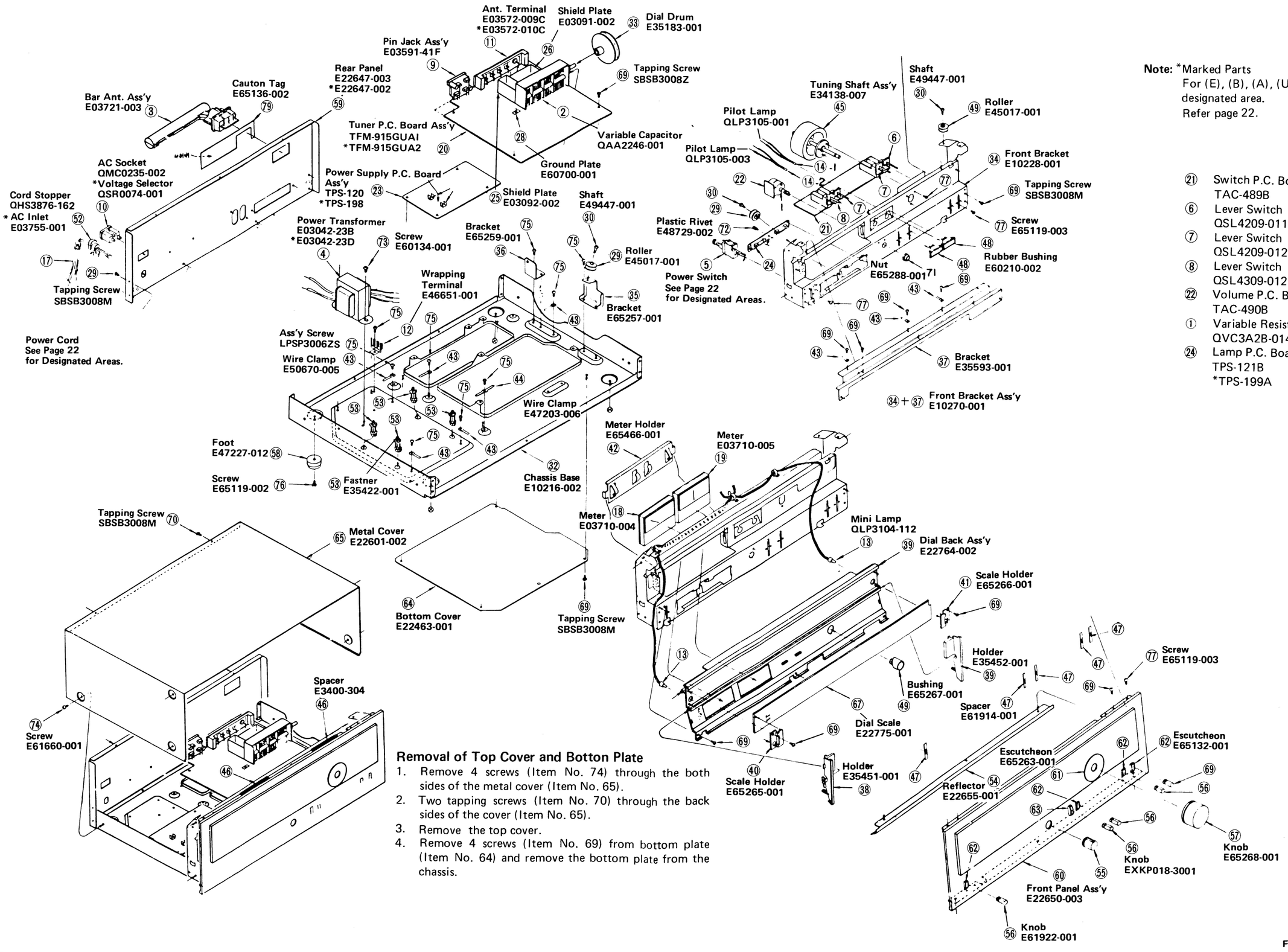


Fig. 9

6. Exploded View and Part Numbers (Removal of Top Cover and and Bottom Plate)



Removal of Top Cover and Botton Plate

1. Remove 4 screws (Item No. 74) through the both sides of the metal cover (Item No. 65).
2. Two tapping screws (Item No. 70) through the back sides of the cover (Item No. 65).
3. Remove the top cover.
4. Remove 4 screws (Item No. 69) from bottom plate (Item No. 64) and remove the bottom plate from the chassis.

Note: *Marked Parts
For (E), (B), (A), (U), (P), (F) designated area.
Refer page 22.

㉑ Switch P.C. Board Ass'y TAC-489B
⑥ Lever Switch QSL4209-011
⑦ Lever Switch QSL4209-012
⑧ Lever Switch QSL4309-012
㉒ Volume P.C. Board Ass'y TAC-490B
① Variable Resistor QVC3A2B-014V
㉔ Lamp P.C. Board Ass'y TPS-121B *TPS-199A

Fig. 10

7. FM/AM Tuner Alignment Procedure

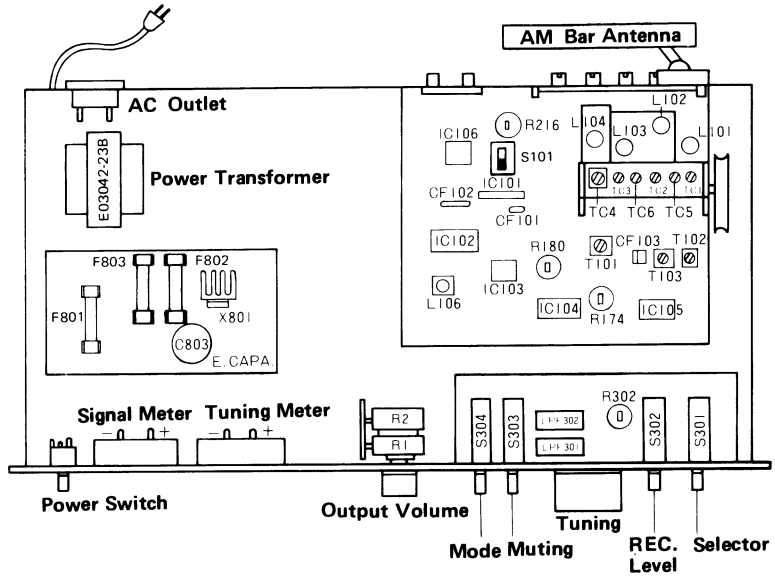


Fig. 11

7-(1) Adjustment Points in the FM Front End

L104 FM oscillator tuning coil:
Adjust the coil so that a 86 MHz signal can be received when the dial pointer indicates 86 MHz.

TC4 FM oscillator tuning trimmer:
When the dial pointer indicates 108 MHz, adjust the tuning trimmer so that the set receives a 108 MHz signal.

L101 FM ANT tuning coil:
L102 FM RF1 tuning coil:
L103 FM RF2 tuning coil:
} Maximize the sensitivity at 86 MHz.

TC1 FM ANT tuning trimmer:
TC2 FM RF1 tuning trimmer:
TC3 FM RF2 tuning trimmer:
} Maximize the sensitivity at 106 MHz.

T101 FM IFT:
Maximize the sensitivity with the weak antenna input.

7-(2) Adjustment Points of the FM Section

L106 FM tracking filter coil:
Adjust the coil so that the pointer of the FM tuning meter comes to the center with no input signal.

R180 MPX VCO free-run frequency adjusting resistor:
Adjust the variable resistor so that the free-run frequnecy becomes 76 kHz at the test point.

R174 MPX pilot cancel adjusting resistor
Receiving a stereo signal, adjust the variable resistor so that leakage of the pilot signal component (19 kHz) to the output is minimized.

LPF301 and 302 MPX low-pass filters:
Adjustment is not required since they are preadjusted and leakage of the subcarrier in the output signal is minimized.

R216 stereo separation adjusting resistor:
Adjust it so that the channel separation becomes maximum.

R302 oscillator output adjusting resistor:
Adjust it so that the output level of the oscillator as the recording reference level (approx. 333 Hz) becomes equal to the output level of a 50-percent modulated FM signal.

7-(3) Adjustment Points of the AM Section

T102 AM oscillator tuning coil:
Adjust it to receive a 650 kHz signal when the dial pointer indicates 650 kHz.

TC5 AM oscillator tuning trimmer:
Adjust it to receive a 1 400 kHz signal when the dial pointer indicates 1 400 kHz.

L1 AM bar antenna coil: Maximize the sensitivity at 650 kHz.

TC5 AM antenna tuning trimmer:
Maximize the sensitivity at 1 400 kHz.

T103 AM IFT:
Ajustment is not required since it is preadjusted.
Maximize the IF gain.

8. Printed Circuit Board Ass'y and Parts List

8-(1) TXX-121B and C Tuner and Switch P.C.Board Ass'y

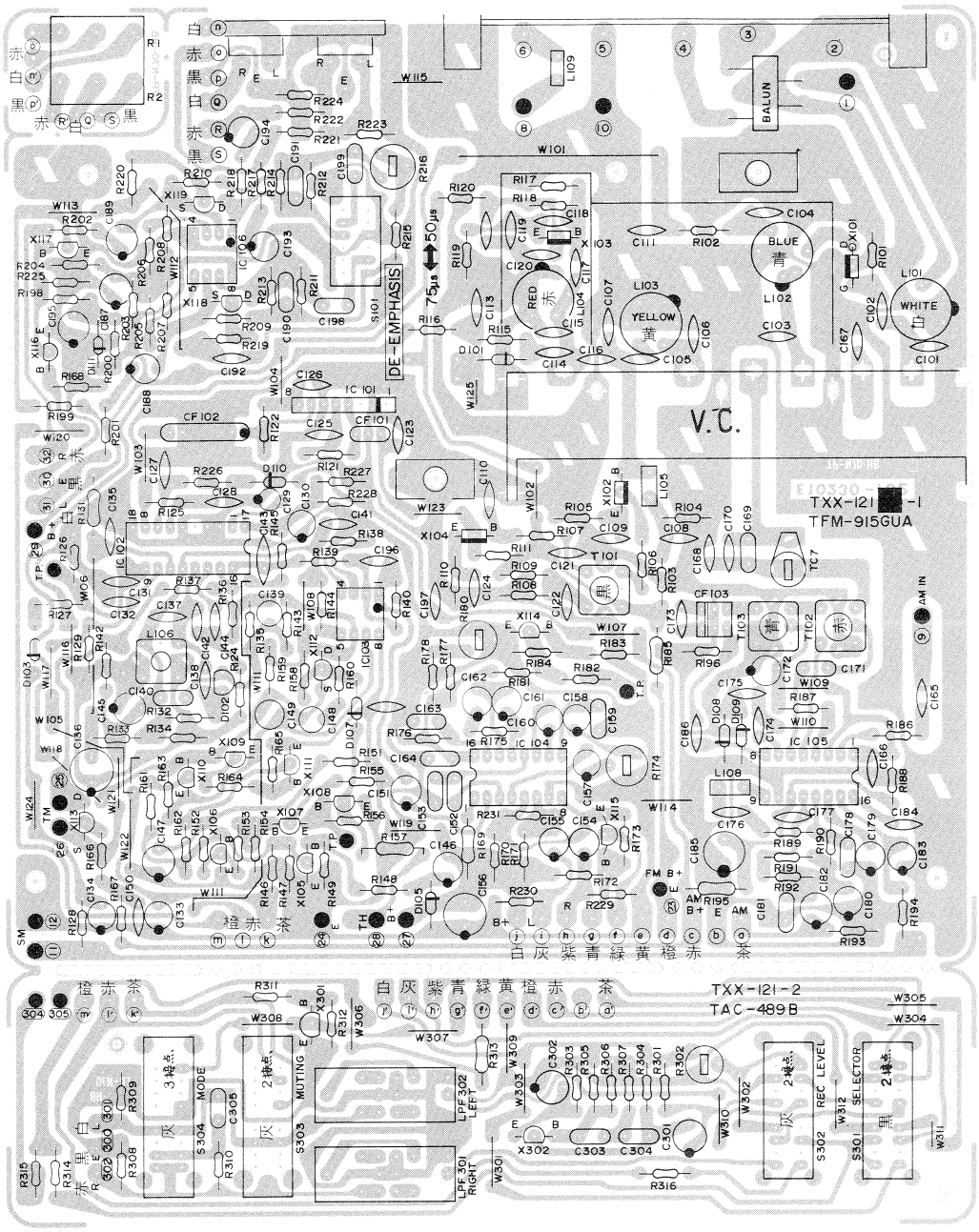
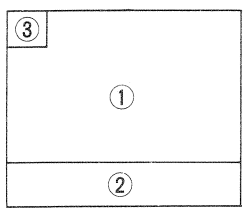


Fig. 12

The number of TXX-121□-1 FM/AM Tuner P.C. Board Ass'y varies according to the area employed.
Location:



① TXX-121□-1 : FM/AM Tuner P.C. Board Ass'y
② TXX-121-2 : Switch P.C. Board Ass'y
③ TXX-121-3 : Volume Control P.C. Board Ass'y

Note:
In □ should be indicated B or C according to the table below when placing an order.

Designated Area	P.C. Board Ass'y
For U.S.A., Canada, U.S. Military Market and Other Countries	TXX-121 B -1
For Europe, U.K. and Australia	TXX-121 C -1

Transistors

Item No.	Part Number	Rating		Description	Maker
		Pc	fT		
X101	2SK55 (D)	150 mW		F.E.T.	Hitachi
X102	2SC535 (C)	100 mW	940 MHz	Silicon	"
X103	2SC1342 (B)	"	410 MHz	"	Tokyo Sanyo
X104	2SC535 (B)	"	700 MHz	"	Hitachi
X105	2SC458 (D)	200 mW	230 MHz	"	"
X106	2SC458 (D)	"	"	"	"
X107	2SC458 (D)	"	"	"	"
X108	2SC458 (D)	"	"	"	"
X109	2SC458 (D)	"	"	"	"
X110	2SA872AV (E)	300 mW	120 MHz	"	"
X111	2SA872AV (E)	"	"	"	"
X112	2SK68 (M, N)	250 mW	146 MHz	F.E.T.	NEC
X113	2SK68 (M, N)	"	"	"	"
X114	2SC458 (D)	200 mW	230 MHz	Silicon	Hitachi
X115	2SC458 (D)	"	"	"	"
X116	2SC458 (D)	"	"	"	"
X117	2SC458 (D)	"	"	"	"
X118	2SK68 (M, N)	250 mW	146 MHz	F.E.T.	NEC
X119	2SK68 (M, N)	"	"	"	"
X301	2SC458 (D)	200 mW	230 MHz	Silicon	Hitachi
X302	2SC458 (D)	"	"	"	"

Integrated Circuits

Item No.	Part Number	Rating	Description	Maker
		Pd		
IC101	HA1211	200 mW	I.C.	Hitachi
IC102	HA11211	730 mW	"	"
IC103	NJM4558D-D	500 mW	"	JRC
IC104	HA11223	500 mW	"	Hitachi
IC105	HA1197	450 mW	"	"
IC106	NJM4558D	500 mW	"	JRC

Diodes

Item No.	Part Number	Rating	Description	Maker
D101	1S2687		Variable Capacitance	JRC
D102	FC64M (L)		"	Fujitsu
D103	1S2076-31		Silicon	Hitachi
D105	1S2076-31		"	"
D107	1S2076-31		"	"
D108	1S2076-31		"	"
D109	1S2076-31		"	"
D110	1S2076-31		"	"
D111	1S2076-31		"	"

Coils & Transformers

Item No.	Part Number	Rating		Description
L101	E03477-031			FM ANT. (White)
L102	E03477-036			FM RF (Blue)
L103	E03477-033			FM RF (Yellow)
L104	E03477-034			FM OSC. (Red)
L105	E03522-1R5KY	1.5 μH		Choke Coil
L106	E03078-40			Detector Coil
L108	E03522-391KY	390 μH		Choke Coil
L109	E03522-101KY	100 μH		Choke Coil
T101	E03078-39			FM IFT (Black)
T102	E03079-29			AM OSC. Coil (Red)
T103	E03613-005			AM IFT (Blue)

Capacitors

Item No.	Part Number	Rating		Description
C101	QCS31HJ-150Z	15 pF	50 V	Ceramic
C102	QCS31HJ-330Z	33 pF	"	"
C103	QCS31HJ-180Z	18 pF	50 V	"
C104	QCF31HP-103Z	0.01 μF	"	"
C105	QCS31HJ-4R0Z	4 pF	"	"
C106	QCS31HJ-180Z	18 pF	"	"
C107	QCS31HJ-8R0Z	8 pF	"	"
C108	QCS31HJ-151Z	160 pF	"	"
C109	QCF31HP-103Z	0.01 μF	"	"
C110	QCS31HJ-390Z	39 pF	"	"
C111	QCF31HP-103Z	0.01 μF	"	"
C113	QCC31EM-473Z	0.047 μF	25 V	"
C114	QCT05CH-5R0	5 pF	50 V	"
C115	QCT05RH-220	22 pF	"	"
C116	QCS31HJ-1R0	1 pF	50 V	"
C117	QCR05CH-7R0	7 pF	"	"
C118	QCT05CH-220	22 pF	"	"
C119	QCT05CH-100	10 pF	"	"
C120	QCF31HP-103Z	0.01 μF	50 V	"
C121	QCF31HP-223Z	0.022 μF	"	"
C122	QCF31HP-223Z	"	"	"
C125	QCF31HP-223Z	"	"	"
C126	QCF31HP-223Z	"	"	"
C127	QCC31EM-473Z	0.047 μF	25 V	"
C128	QCC31EM-473Z	"	"	"
C129	QEW51HA-225	2.2 μF	50 V	Electrolytic
C130	QEW61CA-106Z	10 μF	16 V	"
C131	QCF31HP-223	0.022 μF	50 V	Ceramic
C132	QCF31HP-223Z	"	"	"
C133	QEW61HA-105Z	1 μF	"	Electrolytic
C134	QEW61AA-107Z	100 μF	10 V	"
C135	QCF31HP-223Z	0.022 μF	50 V	Ceramic
C136	QEW51CA-107	100 μF	16 V	Electrolytic
C137	QCT05CH-5R0	5 pF	50 V	Ceramic
C138	QCF31HP-223Z	0.022 μF	"	"
C139	QEZ0046-475	4.7 μF	"	Electrolytic
C140	QFP32AJ-471	470 pF	100 V	Polypropyrene

Capacitors

Item No.	Part Number	Rating		Description
C141	QCF31HP-223	0.022 μF	50 V	Ceramic
C142	QCT05CH-5R0	5 pF	"	"
C143	QCS31HJ-101Z	100 pF	"	"
C144	QCT05CH-100	10 pF	"	"
C145	QEW61HA-105Z	11 pF	"	Electrolytic
C146	QEW61CA-226Z	22 μF	16 V	"
C147	QEW50JA-227	220 μF	6.3 V	"
C148	QEZ0046-475	4.7 μF	50 V	"
C149	QEZ0046-105	1 μF	"	"
C150	QCF31HP-223	0.022 μF	"	Ceramic
C151	QEW61HA-105Z	1 μF	"	Electrolytic
C152	QFM31HK-473Z	0.047 μF	"	Mylar
C153	QFM31HK-152	1 500 pF	"	"
C154	QEW51EA-475	4.7 μF	25 V	Electrolytic
C155	QEW61EA-475Z	"	"	"
C156	QEW51CA-107	100 μF	16 V	"
C157	QEW61HA-474Z	0.47 μF	50 V	"
C158	QEW61HA-474Z	"	"	"
C159	QFM31HK-103	0.01 μF	50 V	Mylar
C160	QEB51EM-475M	4.7 μF	25 V	Low Leak Current Electrolytic
C161	QEB51HM-474	0.47 μF	50 V	"
C162	QEB51EM-106	10 μF	25 V	"
C163	QFM31HK-222Z	2 200 pF	50 V	Mylar
C164	QFP32AG-102	1 000 pF	100 V	Polypropyrene
C165	QCF31HP-223Z	0.022 μF	50 V	Ceramic
C166	QCF31HP-103Z	0.01 μF	"	"
C167	QCS31HJ-5R0Z	5 pF	"	"
C168	QCS31HJ-150	15 pF	"	"
C169	QFP32AG-331	330 pF	100 V	Polypropyrene
C170	QCS31HJ-270Z	27 pF	50 V	Ceramic
C171	QFM31HK-103Z	0.01 μF	"	Mylar
C172	QEW51CA-226	22 μF	16 V	Electrolytic
C173	QCS31HJ-560Z	56 pF	50 V	Ceramic
C174	QCF31HP-223	0.022 μF	"	"
C175	QCF31HP-103	0.01 μF	"	"
C176	QCS31HJ-331Z	330 pF	"	"
C177	QCF31HP-223Z	0.022 μF	"	"
C178	QFM31HK-102	1 000 pF	"	Mylar
C179	QEW61HA-105Z	1 μF	"	Electrolytic
C180	QEW61CA-106Z	10 μF	16 V	"
C181	QFM31HK-103Z	0.01 μF	50 V	Mylar
C182	QEB51HM-224	0.22 μF	"	Low Leak Current Electrolytic
C183	QEW51AA-476	47 μF	10 V	Electrolytic
C184	QCC31EM-473Z	0.047 μF	25 V	Ceramic
C185	QEW51CA-227	220 μF	16 V	Electrolytic
C186	QCF31HP-103Z	0.01 μF	50 V	Ceramic
C187	QEW51CA-106	10 μF	16 V	Electrolytic
C188	QEW61HA-225Z	2.2 μF	50 V	"
C189	QEW61HA-225Z	"	"	"
C190	QFP32AG-102	1 000 pF	100 V	Polypropyrene
C191	QFP32AG-102	"	"	"
C192	QCC31EM-473Z	0.047 μF	25 V	Ceramic
C193	QEW61EA-475Z	4.7 μF	"	Electrolytic

Capacitors

Item No.	Part Number	Rating		Description
C194	QEW61EA-475Z	4.7 μF	25 V	Electrolytic
C195	QEW51CA-476Z	47 μF	16 V	"
C196	QCS31HJ-101	100 pF	50 V	Ceramic
C197	QCF31HP-223Z	0.022 μF	"	"
C198	QFP32AJ-511	510 pF	100 V	Polypropyrene
C199	QFP32AJ-511	"	"	"
C301	QEW61HA-474Z	0.47 μF	50 V	Electrolytic
C302	QEB51EM-475M	4.7 μF	25 V	Low Leak Current Electrolytic
C303	QFM31HJ-103Z	0.01 μF	50 V	Mylar
C304	QFM31HJ-103	"	"	"
C305	QFM31HK-822Z	8 200 pF	50 V	"

Resistors

Item No.	Part Number	Rating		Description
R101	QRD141J-105S	1 MΩ	1/4 W	Carbon
R102	QRD141J-151S	150 Ω	"	"
R103	QRD141J-223S	22 kΩ	"	"
R104	QRD141J-392S	3.9 kΩ	"	"
R105	QRD141J-102S	1 kΩ	"	"
R106	QRD141J-820S	82 Ω	"	"
R107	QRD141J-151S	150 Ω	"	"
R108	QRD141J-332S	3.3 kΩ	"	"
R109	QRD141J-183S	18 kΩ	"	"
R110	QRD141J-151S	150 Ω	"	"
R111	QRD141J-471S	470 Ω	"	"
R115	QRD141J-184S	180 kΩ	"	"
R116	QRD141J-274S	270 kΩ	"	"
R117	QRD141J-103S	10 kΩ	"	"
R118	QRD141J-103S	"	"	"
R119	QRD141J-222S	2.2 kΩ	"	"
R120	QRD141J-471S	470 Ω	"	"
R121	QRD141J-471S	"	"	"
R122	QRD141J-331S	330 Ω	"	"
R124	QRD141J-222S	2.2 kΩ	"	"
R125	QRD141J-331S	330 Ω	"	"
R126	QRD141J-333S	33 kΩ	"	"
R127	QRD141J-392S	3.9 kΩ	"	"
R128	QRD141J-272S	2.7 kΩ	"	"
R131	QRD126J-220	22 Ω	1/2 W	"
R132	QRD141J-184S	180 kΩ	1/4 W	"
R134	QRD141J-154S	150 kΩ	"	"
R135	QRD141J-153S	15 kΩ	"	"
R136	QRD141J-682S	6.8 kΩ	"	"
R137	QRD141J-822S	8.2 kΩ	"	"
R138	QRD141J-102S	1 kΩ	"	"
R139	QRD141J-562S	5.6 kΩ	"	"
R140	QRD141J-153S	15 kΩ	"	"
R142	QRD141J-222S	2.2 kΩ	"	"
R143	QRD141J-682S	6.8 kΩ	"	"
R144	QRD141J-682S	"	"	"
R145	QRD141J-123S	12 kΩ	"	"
R146	QRD141J-104S	100 kΩ	"	"
R147	QRD141J-104S	"	"	"
R148	QRD141J-333S	33 kΩ	"	"

Resistors

Item No.	Part Number	Rating		Description
R149	QRD141J-333S	33 kΩ	1/4 W	Carbon
R151	QRD141J-273S	27 kΩ	"	"
R152	QRD141J-271S	270 Ω	"	"
R153	QRD141J-103S	10 kΩ	"	"
R154	QRD141J-153S	15 kΩ	"	"
R155	QRD141J-183S	18 kΩ	"	"
R156	QRD141J-392S	3.9 kΩ	"	"
R157	QRD126J-271	270 Ω	1/2 W	"
R158	QRD141J-104S	100 kΩ	1/4 W	"
R159	QRD141J-274S	270 kΩ	"	"
R160	QRD141J-271S	270 Ω	1/4 W	Carbon
R161	QRD141J-273S	27 kΩ	"	"
R162	QRD141J-273S	"	"	"
R163	QRD141J-683S	68 kΩ	"	"
R164	QRD141J-274S	270 kΩ	"	"
R165	QRD141J-104S	100 kΩ	"	"
R166	QRD141J-104S	"	"	"
R167	QRD141J-103S	10 kΩ	"	"
R168	QRD141J-274S	270 kΩ	"	"
R169	QRD126J-820	82 Ω	1/2 W	"
R170	QRD141J-392S	3.9 kΩ	1/4 W	"
R171	QRD141J-392S	"	"	"
R172	QRD141J-682S	6.8 kΩ	"	"
R173	QRD141J-102S	1 kΩ	"	"
R174	QVP4A0B-104	100 kΩ		Variable
R175	QRD141J-102S	1 kΩ	1/4 W	Carbon
R176	QRD141J-333S	33 kΩ	"	"
R177	QRD141J-104S	100 kΩ	"	"
R178	QRD141J-752S	7.5 kΩ	"	"
R180	QVP4A0B-102	1 kΩ		Variable
R181	QRD141J-222S	2.2 kΩ	1/4 W	Carbon
R182	QRD141J-274S	270 kΩ	"	"
R183	QRD141J-473S	47 kΩ	"	"
R184	QRD141J-392S	3.9 kΩ	"	"
R185	QRD126J-680	68 Ω	1/2 W	"
R186	QRD141J-101S	100 Ω	1/4 W	"
R187	QRD141J-152S	1.5 kΩ	"	"
R188	QRD141J-151S	150 Ω	"	"
R189	QRD141J-331S	330 Ω	"	"
R190	QRD141J-103S	10 kΩ	"	"
R191	QRD141J-103S	"	"	"
R192	QRD141J-272S	2.7 kΩ	"	"
R193	QRD141J-473S	47 kΩ	"	"
R194	QRD141J-431S	430 Ω	"	"
R195	QRD126J-221	220 Ω	1/2 W	"
R196	QRD141J-562S	5.6 kΩ	1/4 W	"
R198	QRD141J-184S	180 kΩ	"	"
R199	QRD141J-184S	"	"	"
R200	QRD141J-273S	27 kΩ	"	"
R201	QRD141J-562S	5.6 kΩ	"	"
R202	QRD141J-562S	"	"	"
R203	QRD141J-103S	10 kΩ	"	"
R204	QRD141J-103S	"	"	"
R205	QRD141J-102S	1 kΩ	"	"
R206	QRD141J-102S	"	"	"
R207	QRD141J-273S	27 kΩ	"	"
R208	QRD141J-273S	"	"	"
R209	QRD141J-821S	820 Ω	"	"
R210	QRD141J-821S	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R211	QRD141J-124S	120 kΩ	1/4 W	Carbon
R212	QRD141J-124S	120 kΩ	"	"
R213	QRD141J-823S	82 kΩ	"	"
E214	QRD141J-823S	"	"	"
R215	QRD141J-392S	3.9 kΩ	"	"
R216	QVP4A0B-473	47 kΩ		Variable
R217	QRD141J-101S	100 Ω	1/4 W	Carbon
R218	QRD141J-101S	"	"	"
R219	QRD141J-474S	470 Ω	"	"
R220	QRD141J-474S	"	"	"
R221	QRD141J-332S	3.3 kΩ	"	"
R222	QRD141J-332S	3.3 kΩ	1/4 W	Carbon
R223	QRD141J-392S	3.9 kΩ	"	"
R224	QRD141J-392S	"	"	"
R225	QRD141J-183S	18 kΩ	"	"
R226	QRD141J-154S	150 kΩ	"	"
R227	QRD141J-683S	68 kΩ	"	"
R228	QRD141J-154S	150 kΩ	"	"
R229	QRD141J-473S	47 kΩ	"	"
R230	QRD141J-473S	"	"	"
R231	QRD141J-473S	"	"	"
R301	QRD141J-273S	27 kΩ	"	"
R302	QVP4A0B-103	10 kΩ		Variable
R303	QRD141J-332S	3.3 kΩ	1/4 W	Carbon
R304	QRD141J-103S	10 kΩ	"	"
R305	QRD141J-563S	56 kΩ	"	"
R306	QRD141J-153S	15 kΩ	"	"
R307	QRD141J-562S	5.6 kΩ	"	"
R308	QRD141J-103S	10 kΩ	"	"
R309	QRD141J-103S	"	"	"
R310	QRD141J-105S	1 MΩ	"	"
R311	QRD141J-104S	100 kΩ	"	"
R313	QRD126J-221	220 Ω	1/2 W	"
R314	QRD141J-393S	39 kΩ	1/4 W	"
R315	QRD141J-393S	"	"	"
R316	QRD141J-273S	27 kΩ	"	"

Others

Item No.	Part Number	Rating		Description
	E03177-001			Balun FM ANT. 300 Ω → 75 Ω
	See page 22			Antenna Terminal
	E03591-41F			Output Signal Jacks
	E03723-001			Ferrite Core for X101 Drain
	E10230-102			Printed Circuit Board
	E60091-002			Shield Plate for AM Front End
	E60092-002			Shield Plate for FM Front End
	E60700-001			Grounding Plate
	QAA2246-001			Tuning Gang Capacitor
S101	QSS4201-021			Switch for Deemphasis 75 μS/50 μS
S301	QSL4209-011			Switch for FM/AM Select
S302	QSL4209-012			Switch for Recording Calibrate
S303	QSL4209-012			Switch for Muting
S304	QSL4309-012			Switch for Mode
CF101	E03357-010			Ceramic Filter for FM IF
CF102	E03609-001S			Ceramic Filter for FM IF
CF103	E03613-006			Ceramic Filter for AM IF
LPF301	E03427-012			Low-pass Filter (LPF)
LPF302	E03427-012			Low-pass Filter (LPF)
R1, R2	QVC3A2B-014V			Variable Resistor for Output Level

8-(2) TXX-122B and TXX-140A, B, Power Supply and Lamp P.C.Board Ass'y

The P.C. Board number varies according to the designated area as follows.

P.C. Board Ass'y	TXX-122B	TXX-140A	TXX-140B
Area	U.S.A. and Canada	U.S. Military Market and other Countries	Europe, U.K. and Australia

TXX-122B

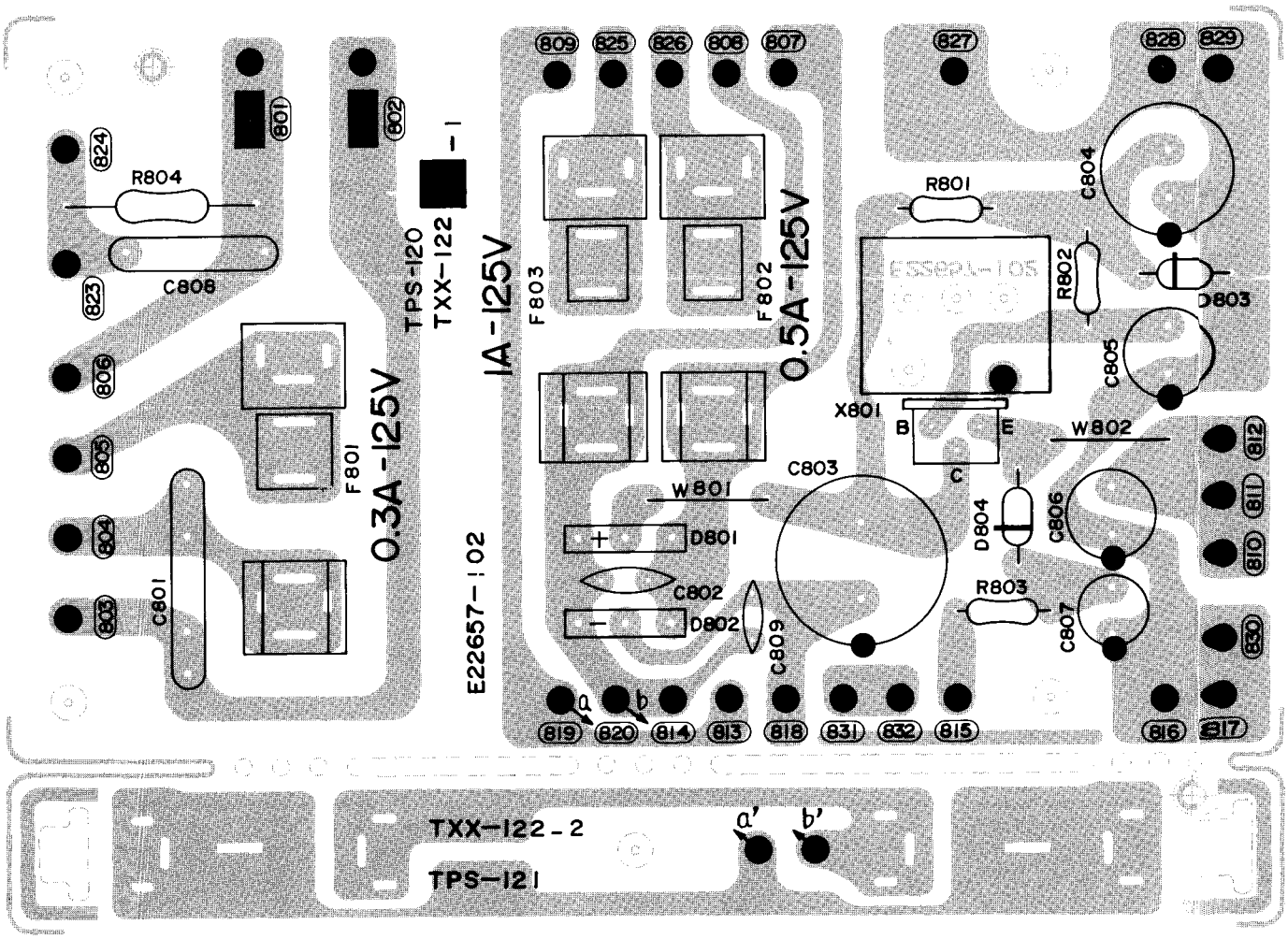


Fig. 13

Transistors

Item No.	Part Number	Rating		Description	Maker
		Pc	fT		
X801	2SD313V (E)	30 W	8 MHz	Silicon	Sanyo

Diodes

Item No.	Part Number	Rating		Description	Maker
D801	S2VC20			Silicon	Shindengen
D802	S2VC20R			"	"
D803	XZ-132			Zener 12.5 V	JRC
D804	1S2076-31			Silicon	Hitachi

Capacitors

Item No.	Part Number	Rating		Description
C801	QCZ9013-103	0.01 μF	125 V, AC	Ceramic ⚠
C802	QCF31HP-103	"	50 V	"
C803	QEW51EA-228	2 200 μF	25 V	Electrolytic
C804	QEW51CA-477	470 μF	16 V	"
C805	QEW51CA-227	220 μF	"	"
C806	QEW51CA-107	100 μF	"	"
C807	QEW51CA-476	47 μF	"	"
C809	QCF31HP-103	0.01 μF	50 V	Ceramic

Resistors

Item No.	Part Number	Rating		Description
R801	QRD141J-102S	1 kΩ	1/4 W	Carbon
R802	QRD141J-470S	47 Ω	"	"
R803	QRD141J-102S	1 kΩ	"	"
R804	QRC121K-275E	2.7 MΩ	1/2 W	Composition ⚠

NOTE: ⚠ SAFETY PARTS

Others

Item No.	Part Number	Rating		Description
	E22657-102			Printed Circuit Board
	E45524-001			4 pcs. for Lamp Holder
	E45524-001			6 pcs. for Fuse Holder
	E61537-001			Heat Sink for X801

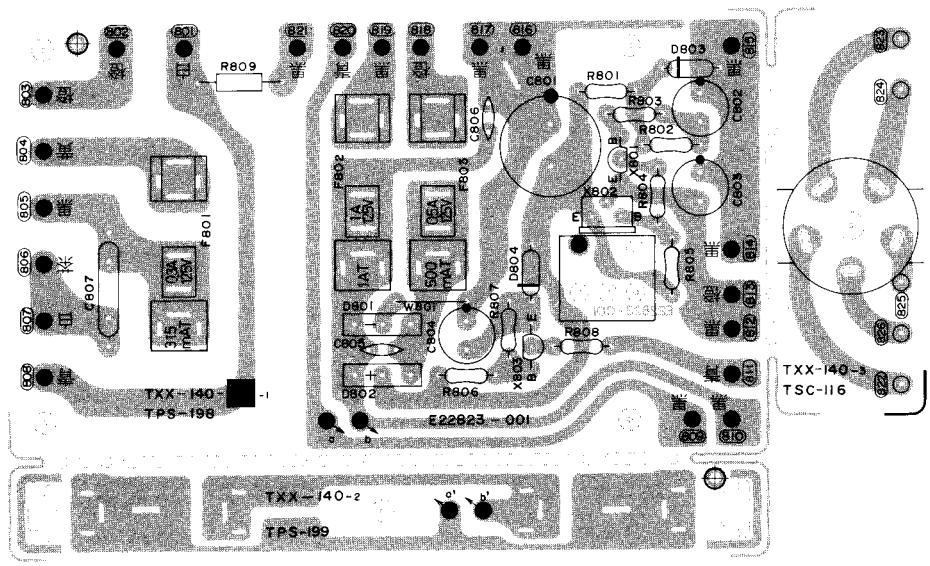


Fig. 14

Transistors

Item No.	Part Number	Rating		Description	Maker
		Pc	fT		
X801	2SC458 (D)	0.2 W	230 MHz	Silicon	Hitachi
X802	2SB507 V (E)	30 W	8 MHz	"	Sanyo
X803	2SA872 AV (E)	0.3 W	120 MHz	"	Hitachi

Diodes

Item No.	Part Number	Rating	Description	Maker
D801	S2VC20R		Silicon	Shindengen
D802	S2VC20		"	"
D803	XZ-132	12.5 V, 0.5 W	Zener	JRC
D804	1S2076-31		Silicon	Hitachi

Capacitors

Item No.	Part Number	Rating		Description	
C801	QEW51EA-228	2 200 μF	25 V	Electrolytic	
C802	QEW51CA-107	100 μF	16 V	"	
C803	QEW51CA-107	100 μF	16 V	"	
C804	QEW51EA-476	47 μF	16 V	"	
C805	QCF31HP-103	0.01 μF	50 V	Ceramic	
C806	QCF31HP-103	"	"	"	

Resistors

Item No.	Part Number	Rating		Description
R801	QRD141J-102S	1 kΩ	1/4 W	Carbon
R802	QRD141J-332S	3.3 kΩ	"	"
R803	QRD141J-561S	560 Ω	"	"
R804	QRD141J-561S	560 Ω	"	" ⚠
R805	QRD141J-102S	1 kΩ	"	"
R806	QRD141J-104S	100 kΩ	"	"
R807	QRD141J-273S	27 kΩ	"	"
R808	QRD141J-332S	3.3 kΩ	"	"
R809	QRC121K-475E	4.7 MΩ	1/2 W	Composition only for TXX-140A ⚠

Others

Item No.	Part Number	Rating	Description
	E45524-001		4 pcs. for Lamp Holder
	E45524-001	for TXX-140A	6 pcs. for Fuse Holder
	E48965-002	for TXX-140B	6 pcs. for Fuse Holder
	E61537-001		Heat Sink for X802
	QSR0074-001		Voltage Selector

NOTE: ⚠ SATFETY PARTS

9. Packing Materials and Part Numbers

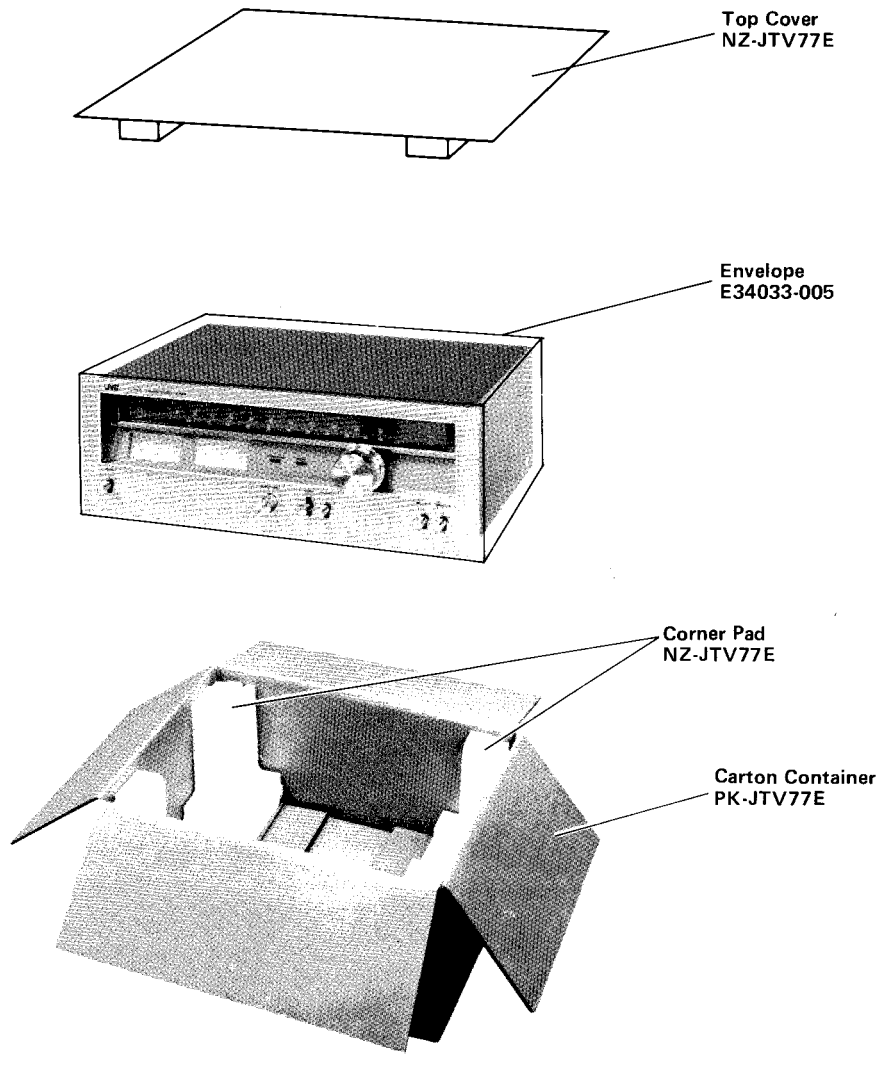
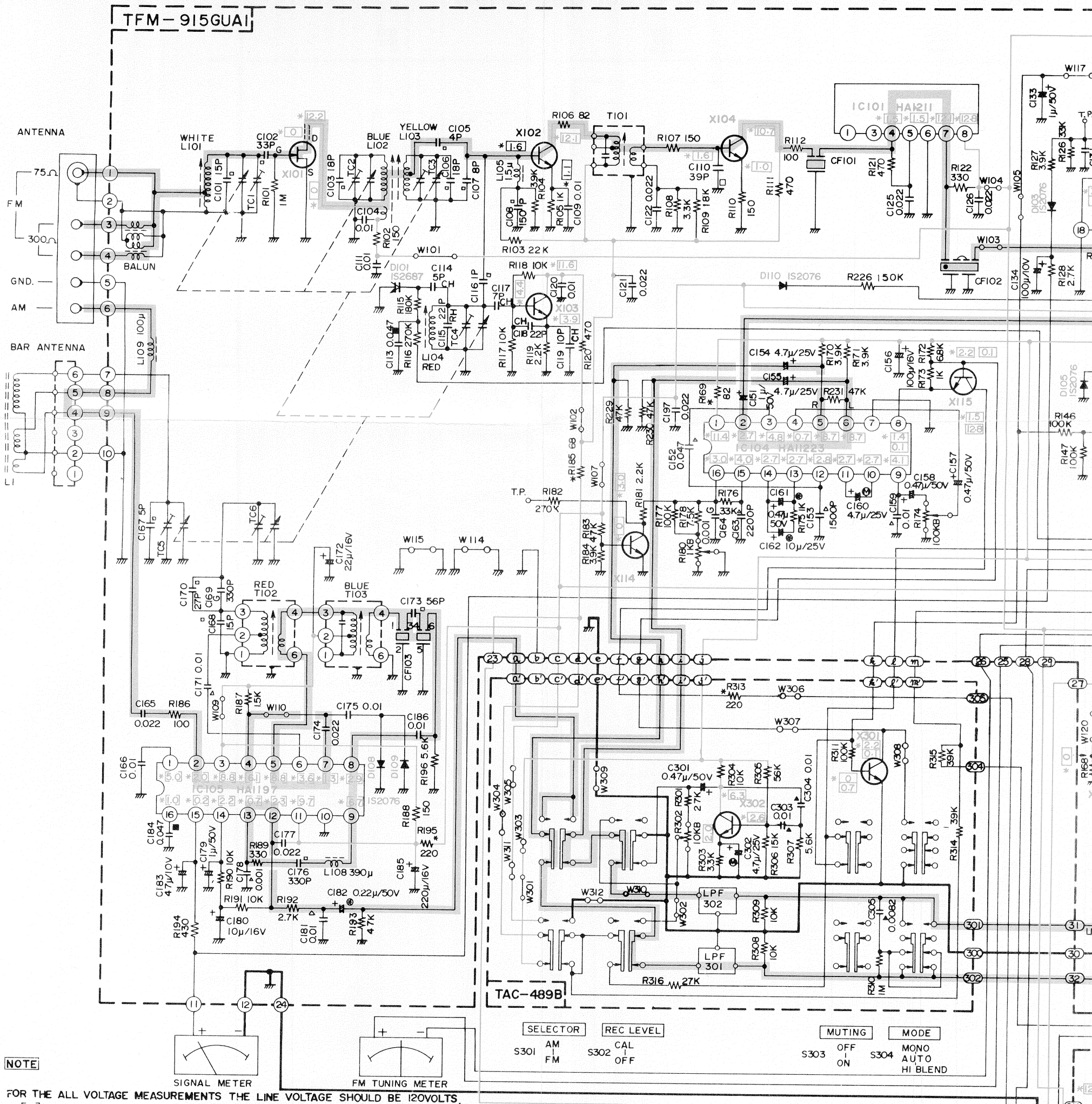


Fig. 15

10. Accessories List

Part Number	Description	Q'ty
See page 22	Instruction Book	1
E64207-002	Envelope	1
See page 22	Warrantly Card	1
E03614-002	FM Antenna	1
E03479-001	Signal Cord	1
See page 22	Power Cord	1

11-(2) JT-V77 Schematic Diagram (for U.S.A. and Canada)



NOTE

FOR THE ALL VOLTAGE MEASUREMENTS THE LINE VOLTAGE SHOULD BE 120VOLTS.

*[ ] SHOWS DC VOLTAGE TO THE CHASSIS WHEN RECEIVING AM SIGNAL.

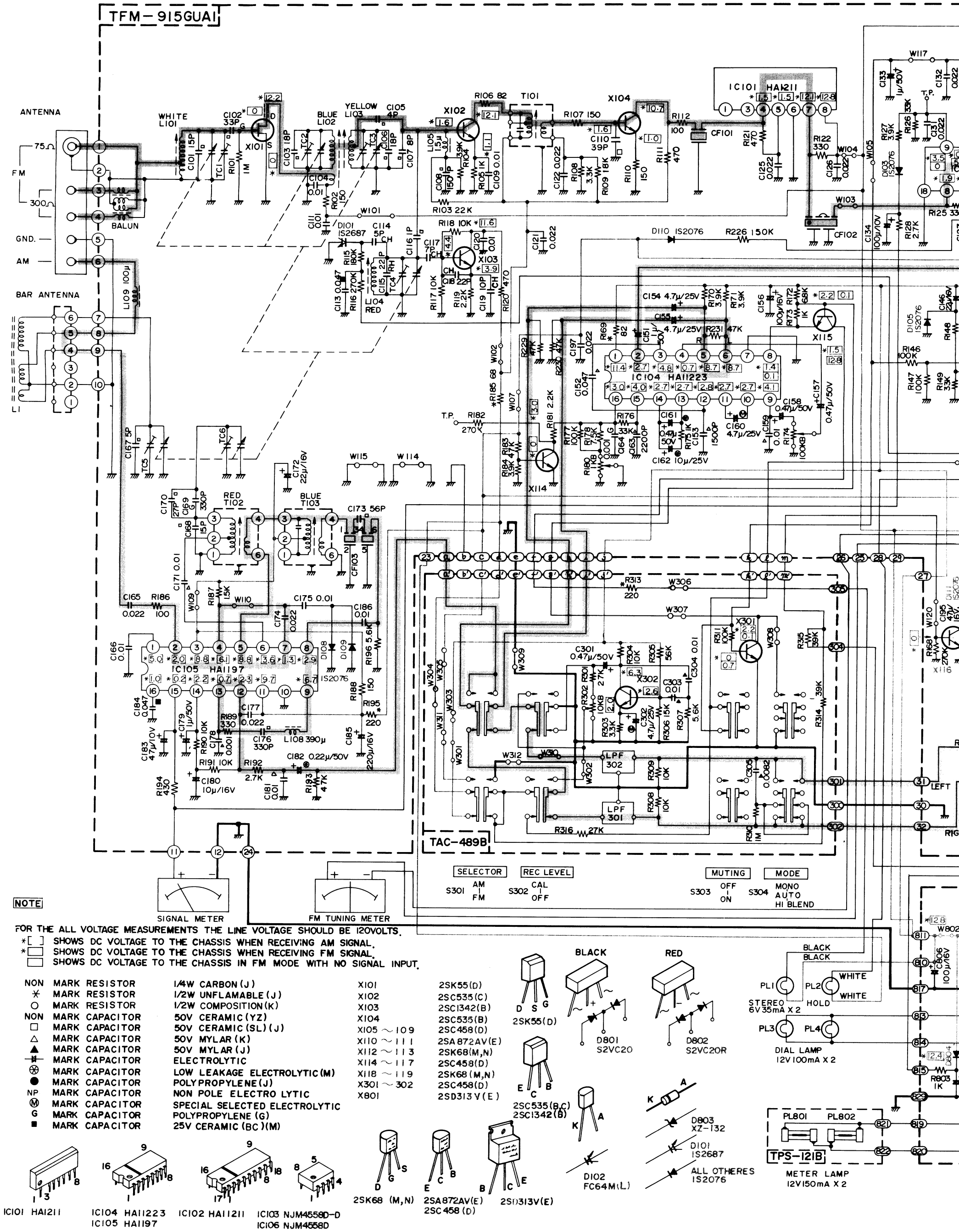
*[ ] SHOWS DC VOLTAGE TO THE CHASSIS WHEN RECEIVING FM SIGNAL.

[ ] SHOWS DC VOLTAGE TO THE CHASSIS IN FM MODE WITH NO SIGNAL INPUT.

NON MARK	RESISTOR	1/4W CARBON (J)
✳ MARK	RESISTOR	1/2W UNFLAMABLE (J)
○ MARK	RESISTOR	1/2W COMPOSITION (K)
NON MARK	CAPACITOR	50V CERAMIC (YZ)
□ MARK	CAPACITOR	50V CERAMIC (SL) (J)
△ MARK	CAPACITOR	50V MYLAR (K)
▲ MARK	CAPACITOR	50V MYLAR (J)
⊣⊢ MARK	CAPACITOR	ELECTROLYTIC
Ⓚ MARK	CAPACITOR	LOW LEAKAGE ELECTROLYTIC (M)
● MARK	CAPACITOR	POLYPROPYLENE (J)
NP MARK	CAPACITOR	NON POLE ELECTRO LYTIC
Ⓜ MARK	CAPACITOR	SPECIAL SELECTED ELECTROLYTIC
G MARK	CAPACITOR	POLYPROPYLENE (G)
■ MARK	CAPACITOR	25V CERAMIC (BC) (M)

X101	2SK55(D)
X102	2SC535(C)
X103	2SC1342(B)
X104	2SC535(B)
X105 ~ 109	2SC458(D)
X110 ~ 111	2SA872AV(E)
X112 ~ 113	2SK68(M,N)
X114 ~ 117	2SC458(D)
X118 ~ 119	2SK68(M,N)
X301 ~ 302	2SC458(D)
X801	2SD313V(E)

11-(2) JT-V77 Schematic Diagram (for U.S.A. and Canada)



NOTE

FOR THE ALL VOLTAGE MEASUREMENTS THE LINE VOLTAGE SHOULD BE 120VOLTS.

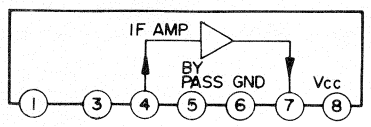
*[ ] SHOWS DC VOLTAGE TO THE CHASSIS WHEN RECEIVING AM SIGNAL.

*▭ SHOWS DC VOLTAGE TO THE CHASSIS WHEN RECEIVING FM SIGNAL.

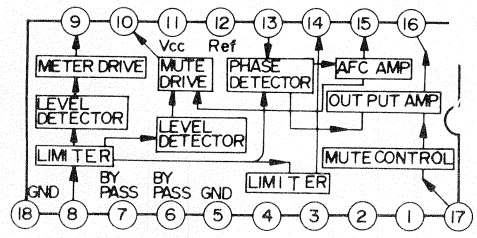
▭ SHOWS DC VOLTAGE TO THE CHASSIS IN FM MODE WITH NO SIGNAL INPUT.

NON	MARK RESISTOR	1/4W CARBON (J)
✳	MARK RESISTOR	1/2W UNFLAMABLE (J)
○	MARK RESISTOR	1/2W COMPOSITION (K)
NON	MARK CAPACITOR	50V CERAMIC (YZ)
□	MARK CAPACITOR	50V CERAMIC (SL) (J)
△	MARK CAPACITOR	50V MYLAR (K)
▲	MARK CAPACITOR	50V MYLAR (J)
⊣⊢	MARK CAPACITOR	ELECTROLYTIC
⊛	MARK CAPACITOR	LOW LEAKAGE ELECTROLYTIC (M)
●	MARK CAPACITOR	POLYPROPYLENE (J)
NP	MARK CAPACITOR	NON POLE ELECTRO LYTIC
Ⓜ	MARK CAPACITOR	SPECIAL SELECTED ELECTROLYTIC
G	MARK CAPACITOR	POLYPROPYLENE (G)
■	MARK CAPACITOR	25V CERAMIC (BC) (M)

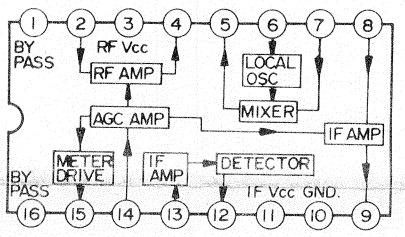
X101	2SK55 (D)
X102	2SC535 (C)
X103	2SC1342 (B)
X104	2SC535 (B)
X105 ~ 109	2SC458 (D)
X110 ~ 111	2SA872AV (E)
X112 ~ 113	2SK68 (M,N)
X114 ~ 117	2SC458 (D)
X118 ~ 119	2SK68 (M,N)
X301 ~ 302	2SC458 (D)
X801	2SD313V (E)



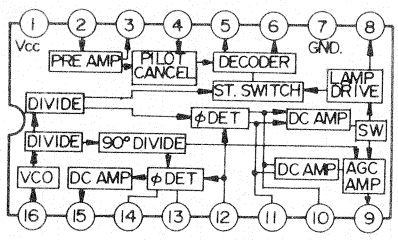
IC101 HA1211



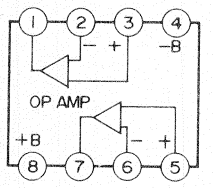
IC102 HA11211



IC105 HA1197



IC104 HA11223

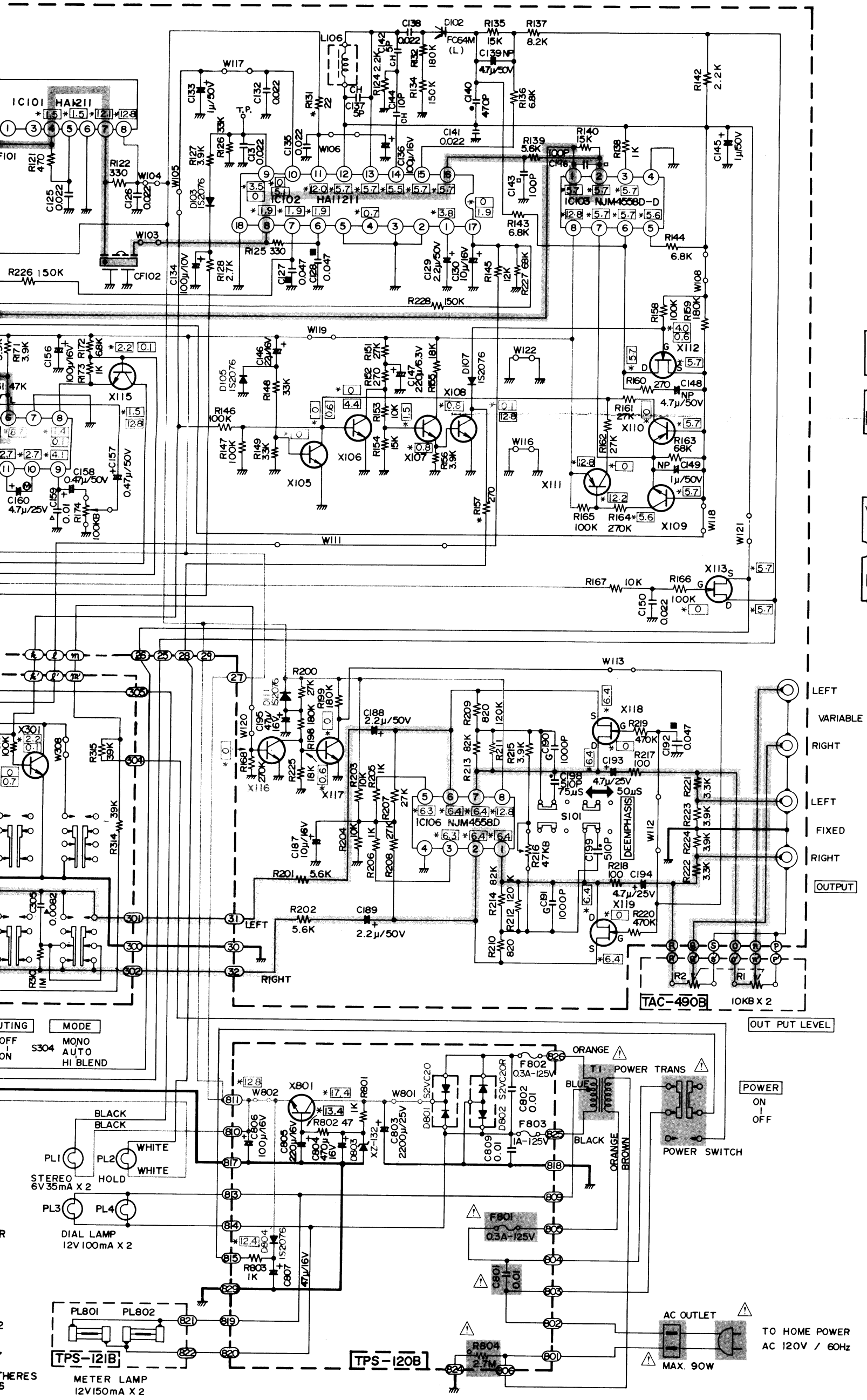


IC103 NJM4558D-D
IC106 NJM4558D

CIRCUIT BOARDS

TXX-1218
- TFM-915GUAI
- TAC-489B
- TAC-490B

TXX-1223
- TPS-1208
- TPS-1218


IC101 HA1211
IC102 HA11211
IC103 NJM4558D-D
IC104 HA11223
IC105 HA1197
IC106 NJM4558D
IC108 NJM4558D-D
X101
X102
X103
X104
X105
X106
X107
X108
X109
X110
X111
X112
X113
X114
X115
X116
X117
X118
X119
X301
X801
CF102
S101
S304
PL1
PL2
PL3
PL4
PL801
PL802
T1 POWER TRANS
POWER SWITCH
AC OUTLET
TO HOME POWER
AC 120V / 60Hz
MAX. 90W
STEREO
6V 35mA X 2
HOLD
DIAL LAMP
12V 100mA X 2
METER LAMP
12V 150mA X 2
LEFT
VARIABLE
RIGHT
LEFT
FIXED
RIGHT
OUTPUT
TAC-490B
10KB X 2
TPS-121B
TPS-120B
OUT PUT LEVEL
MODE
MONO
AUTO
HI BLEND
POWER
ON
OFF
CIRCUIT BOARDS
TXX-121B
TFM-915GUA1
TAC-489B
TAC-490B
TXX-1223
TPS-1208
TPS-121B

11-(1) JT-V77 Schematic Diagram (for Europe, United Kingdom, Australia, U.S. Mili

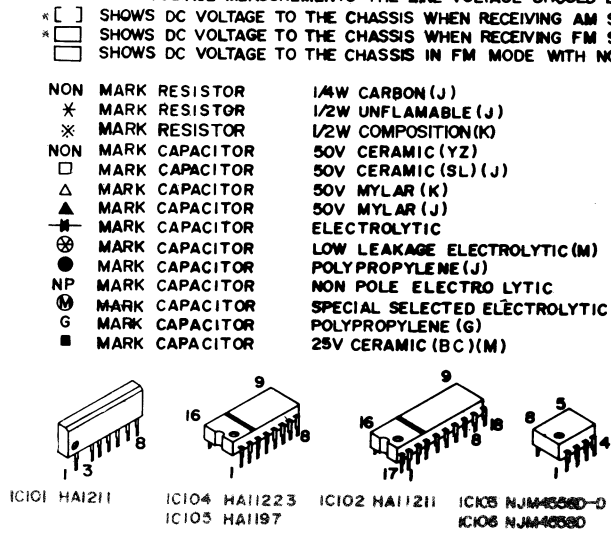
NOTE

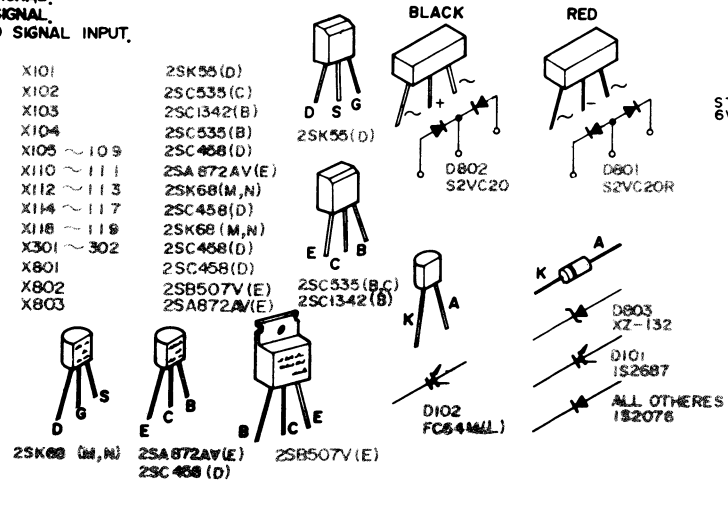
FOR THE ALL VOLTAGE MEASUREMENTS THE LINE VOLTAGE SHOULD BE RATED VALUE.

- *[ ] SHOWS DC VOLTAGE TO THE CHASSIS WHEN RECEIVING AM SIGNAL.
- *▭ SHOWS DC VOLTAGE TO THE CHASSIS WHEN RECEIVING FM SIGNAL.
- ▭ SHOWS DC VOLTAGE TO THE CHASSIS IN FM MODE WITH NO SIGNAL INPUT.

NON MARK	RESISTOR	1/4W CARBON (J)
✳ MARK	RESISTOR	1/2W UNFLAMABLE (J)
※ MARK	RESISTOR	1/2W COMPOSITION (K)
NON MARK	CAPACITOR	50V CERAMIC (YZ)
□ MARK	CAPACITOR	50V CERAMIC (SL) (J)
△ MARK	CAPACITOR	50V MYLAR (K)
▲ MARK	CAPACITOR	50V MYLAR (J)
⊣⊢ MARK	CAPACITOR	ELECTROLYTIC
⊛ MARK	CAPACITOR	LOW LEAKAGE ELECTROLYTIC (M)
● MARK	CAPACITOR	POLYPROPYLENE (J)
NP MARK	CAPACITOR	NON POLE ELECTRO LYTIC
Ⓜ MARK	CAPACITOR	SPECIAL SELECTED ELECTROLYTIC
G MARK	CAPACITOR	POLYPROPYLENE (G)
■ MARK	CAPACITOR	25V CERAMIC (BC) (M)

X101	2SK55(D)
X102	2SC535(C)
X103	2SC1342(B)
X104	2SC535(B)
X105 ~ 109	2SC458(D)
X110 ~ 111	2SA872AV(E)
X112 ~ 113	2SK68(M,N)
X114 ~ 117	2SC458(D)
X118 ~ 119	2SK68(M,N)
X301 ~ 302	2SC458(D)
X801	2SC458(D)
X802	2SB507V(E)
X803	2SA872AV(E)





Printed Circuit Board Ass'y Locations

P.C. Board Ass'y	Description	Page
TXX-121B and C	Tuner and Switch P.C. Board Ass'y	9
TXX-122B	Power Supply and Lamp P.C. Board Ass'y	16
TXX-140A, B		18

Notes:

1. Parts in red indicate transistors or ICs.
2. ~~~ indicates signal path.
3. —— indicates positive B power supply.
4. Voltage value in ▭ are positive.
5. When replacing the parts in the darkened area ■ and those be sure to use the designated parts to ensure safety.
6. This is the standard circuit diagram.
   The design and contents are subject to change without notice

11-(1) JT-V77 Schematic Diagram (for Europe, United Kingdom, Australia, U.S. Mili

NOTE

FOR THE ALL VOLTAGE MEASUREMENTS THE LINE VOLTAGE SHOULD BE RATED VALUE.

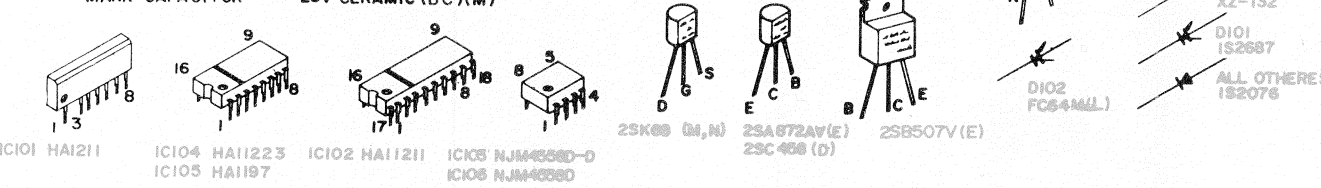
*[ ] SHOWS DC VOLTAGE TO THE CHASSIS WHEN RECEIVING AM SIGNAL.

* SHOWS DC VOLTAGE TO THE CHASSIS WHEN RECEIVING FM SIGNAL.

SHOWS DC VOLTAGE TO THE CHASSIS IN FM MODE WITH NO SIGNAL INPUT.

NON MARK RESISTOR	1/4W CARBON (J)	
* MARK RESISTOR	1/2W UNFLAMABLE (J)	
* MARK RESISTOR	1/2W COMPOSITION (K)	
NON MARK CAPACITOR	50V CERAMIC (YZ)	
□ MARK CAPACITOR	50V CERAMIC (SL) (J)	
△ MARK CAPACITOR	50V MYLAR (K)	
▲ MARK CAPACITOR	50V MYLAR (J)	
MARK CAPACITOR	ELECTROLYTIC	
⊗ MARK CAPACITOR	LOW LEAKAGE ELECTROLYTIC (M)	
● MARK CAPACITOR	POLYPROPYLENE (J)	
NP MARK CAPACITOR	NON POLE ELECTRO LYTIC	
Ⓜ MARK CAPACITOR	SPECIAL SELECTED ELECTROLYTIC	
G MARK CAPACITOR	POLYPROPYLENE (G)	
■ MARK CAPACITOR	25V CERAMIC (BC) (M)	

X101	2SK55(D)
X102	2SC535(C)
X103	2SC1342(B)
X104	2SC535(B)
X105 ~ 109	2SC458(D)
X110 ~ 111	2SA872AV(E)
X112 ~ 113	2SK68(M,N)
X114 ~ 117	2SC458(D)
X118 ~ 119	2SK68(M,N)
X301 ~ 302	2SC458(D)
X801	2SC458(D)
X802	2SB507V(E)
X803	2SA872AV(E)

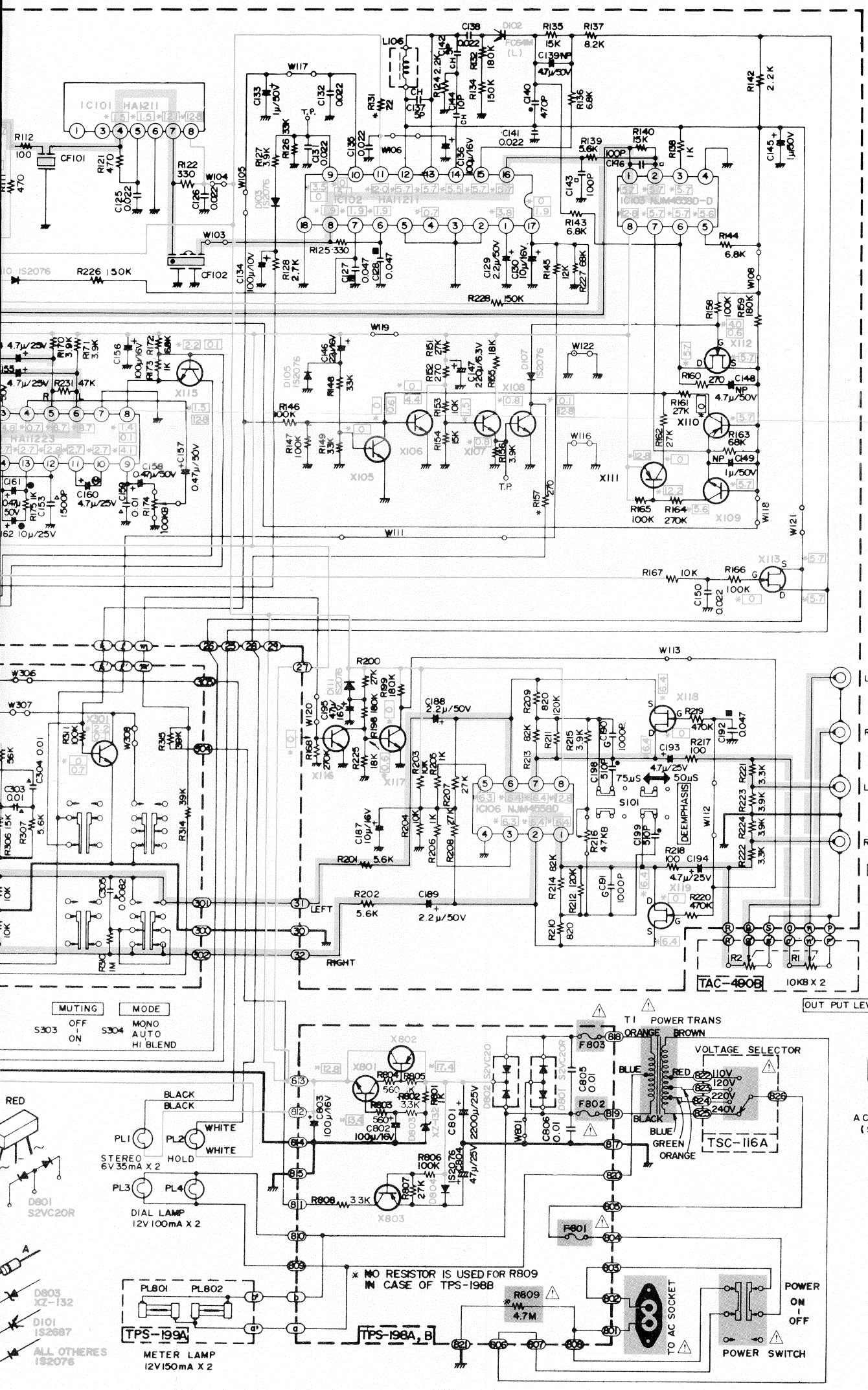


Printed Circuit Board Ass'y Locations

P.C. Board Ass'y	Description	Page
TXX-121B and C	Tuner and Switch P.C. Board Ass'y	9
TXX-122B	Power Supply and Lamp P.C. Board Ass'y	16
TXX-140A, B		18

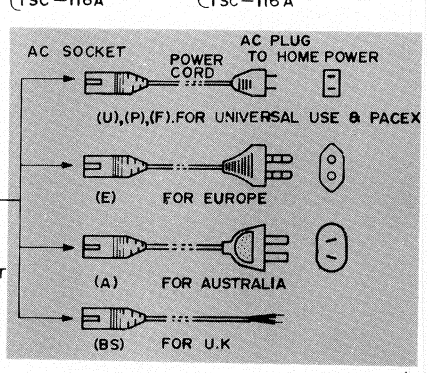
Notes:

1. Parts in red indicate transistors or ICs.
2. ▒ indicates signal path.
3. —— indicates positive B power supply.
4. Voltage value in □ are positive.
5. When replacing the parts in the darkened area ▒ and those be sure to use the designated parts to ensure safety.
6. This is the standard circuit diagram.
   The design and contents are subject to change without notice



CIRCUIT BOARDS

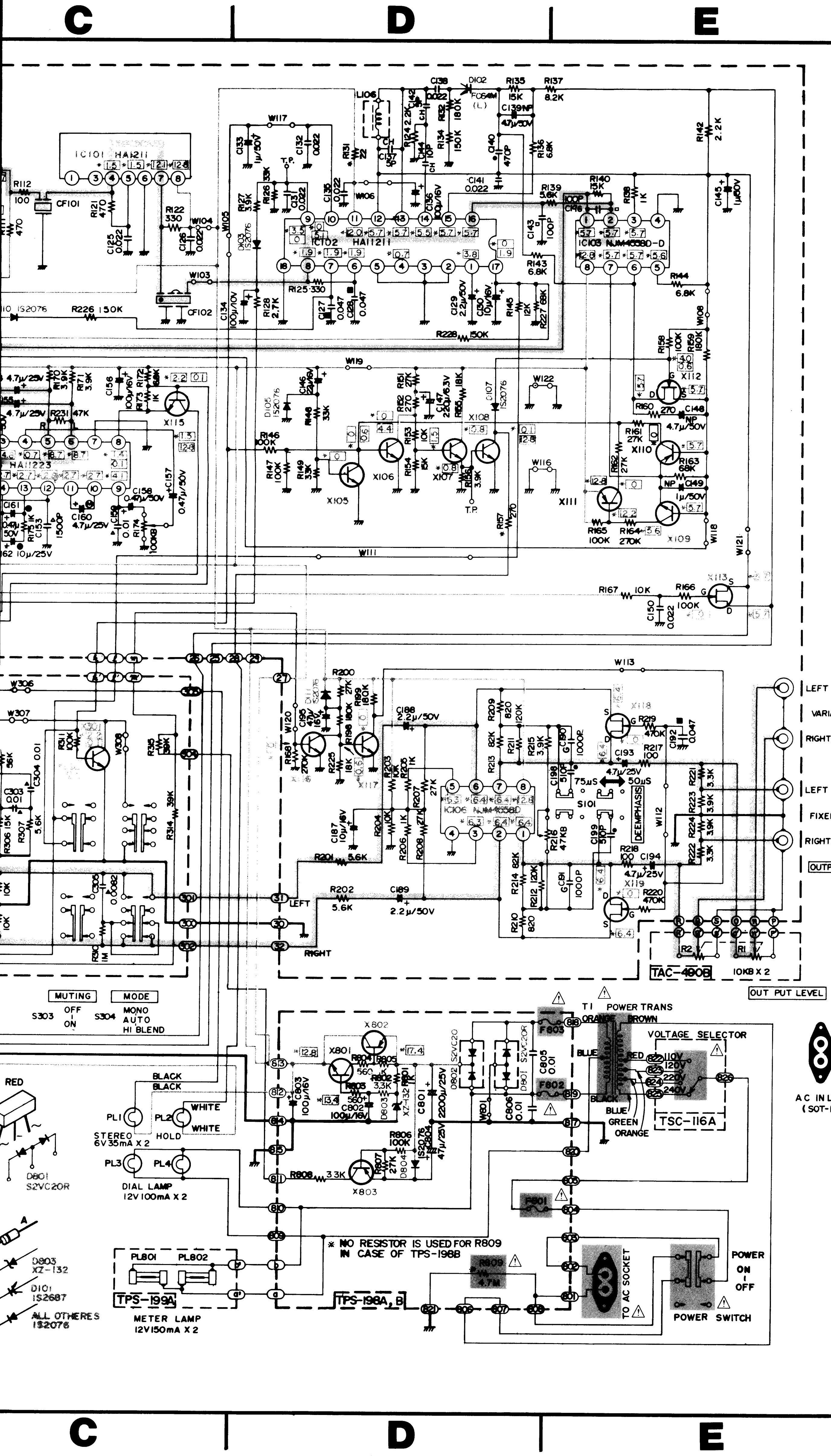
TXX-1218 (U, P)	TXX-1218 (F, A, E, BS)
TFM-915GUAI TAC-489B TAC-490B	TFM-915GUA2 TAC-489B TAC-490B
TXX-1404 (U, P, F)	TXX-1408 (A, E, BS)
TPS-198A TPS-199A TSC-116A	TPS-198B TPS-199A TSC-116A

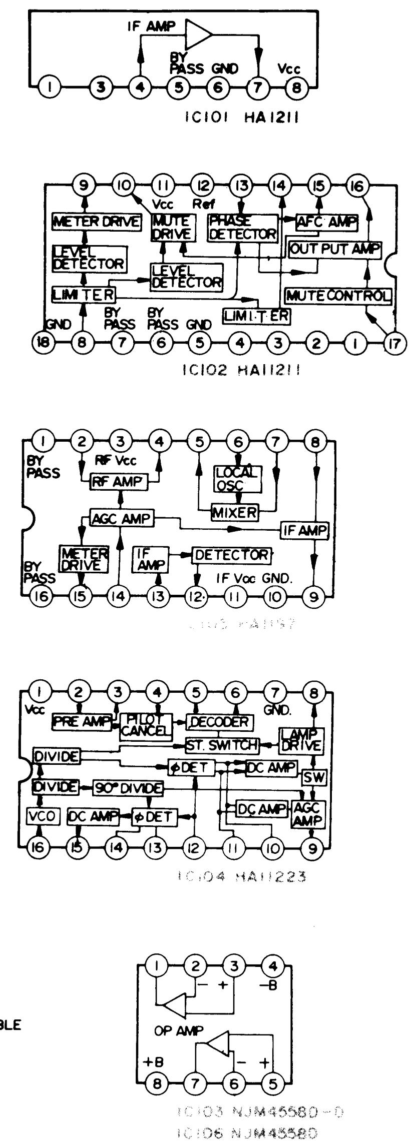


FUSE RATINGS

	TPS-198A (U, P, F)	TPS-198B (A, E, BS)
F801	0.3A-125V SLOW BLOW	315mAT
F802	1A-125V SLOW BLOW	1AT
F803	0.3A-125V SLOW BLOW	315mAT

Notes:
1. Parts in red indicate transistors or ICs.
2. ▭ indicates signal path.
3. —— indicates positive B power supply.
4. Voltage value in ▭ are positive.
5. When replacing the parts in the darkened area ▭ and those marked with ⚠, be sure to use the designated parts to ensure safety.
6. This is the standard circuit diagram. The design and contents are subject to change without notice.


C
D
E
IC101 HA1211
IC102 HA11211
IC103 NJM4558D-D
IC106 NJM4558D
HA11223
DEEMPHASIS
75μS
50μS
S101
TAC-490B
10KB X 2
OUT PUT LEVEL
LEFT
VARIABLE
RIGHT
LEFT
FIXED
RIGHT
OUTPUT
MUTING
MODE
S303
OFF
ON
S304
MONO
AUTO
HI BLEND
T1 POWER TRANS
ORANGE
BROWN
VOLTAGE SELECTOR
110V
120V
220V
240V
TSC-116A
BLUE
RED
BLACK
GREEN
ORANGE
F801
F802
F803
R809
4.7M
STEREO
6V 35mA X 2
HOLD
DIAL LAMP
12V 100mA X 2
PL801
PL802
TPS-199A
METER LAMP
12V150mA X 2
TPS-198A, B
※ NO RESISTOR IS USED FOR R809
IN CASE OF TPS-198B
TO AC SOCKET
POWER
ON
OFF
POWER SWITCH
D801
S2VC20R
D803
XZ-132
D101
1S2687
ALL OTHERES
1S2076


IF AMP
BY PASS
GND
Vcc
IC101 HA1211
METER DRIVE
MUTE DRIVE
PHASE DETECTOR
AFC AMP
OUT PUT AMP
LEVEL DETECTOR
LEVEL DETECTOR
LIMITER
LIMITER
MUTE CONTROL
IC102 HA11211
RF Vcc
RF AMP
LOCAL OSC
MIXER
AGC AMP
IF AMP
METER DRIVE
IF AMP
DETECTOR
IF Vcc GND.
PRE AMP
PILOT CANCEL
DECODER
ST. SWITCH
LAMP DRIVE
DIVIDE
φDET
DC AMP
SW
90° DIVIDE
VCO
DC AMP
AGC AMP
IC104 HA11223
OP AMP
+B
-B
IC103 NJM4558D-D
IC106 NJM4558D

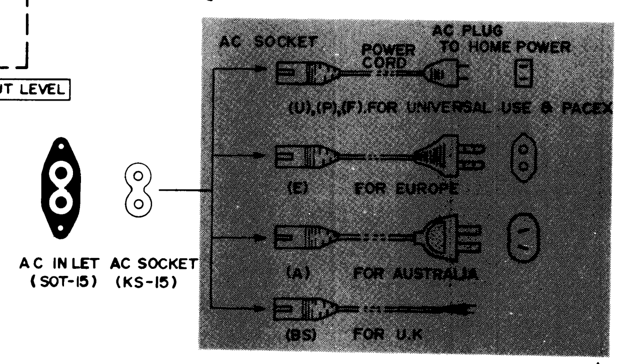
CIRCUIT BOARDS

TXX—121B (U, P)
- TFM—915GUA1
- TAC—489B
- TAC—490B

TXX—121C (F, A, E, BS)
- TFM—915GUA2
- TAC—489B
- TAC—490B

TXX—140A (U, P, F)
- TPS—198A
- TPS—199A
- TSC—116A

TXX—140B (A, E, BS)
- TPS—198B
- TPS—199A
- TSC—116A



FUSE RATINGS

	TPS—198A (U, P, F)	TPS—198B (A, E, BS)
F801	0.3A-125V SLOW BLOW	315mAT
F802	1A-125V SLOW BLOW	1AT
F803	0.3A-125V SLOW BLOW	315mAT

Notes:
1. Parts in red indicate transistors or ICs.
2. indicates signal path.
3. —— indicates positive B power supply.
4. Voltage value in ☐ are positive.
5. When replacing the parts in the darkened area and those marked with ⚠, be sure to use the designated parts to ensure safety.
6. This is the standard circuit diagram.
   The design and contents are subject to change without notice.

12. Parts List with Specified Numbers for Designated Areas

Page	Item No.	Description	For U.S.A. and Canada	For Europe and Australia	For U.K.	For U.S. Military Market and Other Countries
7	T1 (4)	Power Transformer ⚠	E03042-23B	E03042-23D	E03042-23DBS	E03042-23D
7	5	Power Switch ⚠	QSL2214-002	QSL2214-004	QSL2214-004BS	QSL2214-003
7	17	Power Cord with Plug ⚠	QMP1200-244	QMP3950-183 (For Europe) QMP2530-183 (For Australia)	QMP9017-009BS	QMP1230-183
7	52	AC Inlet ⚠	–	E03755-001	E03755-001BS	E03755-001
7	10	Voltage Selector ⚠	–	QSR0074-001	QSR0074-001BS	QSR0074-001
7	10	AC Outlet ⚠	QMC0235-002	–	–	–
7	59	Rear Panel	E22647-003	E22647-002	E22647-002	E22647-002
		Power P.C. Board Ass'y ⚠	TXX-122B	TXX-140B	TXX-140B	TXX-140A
		Voltage Selector P.C. Board Ass'y ⚠	–	TSC-116A	TSC116A	TSC-116A
16 & 18	F801	Fuse (Primary) ⚠	QMF61U1-R30 (0.3 A)	QMF51A2-R315 (315 mAT)	QMF51A2-R315BS (315 mAT)	QMF61UI-R30 (0.3 A)
16 & 18	F802	Fuse (Secondary) ⚠	QMF61U1-R50 (0.5 A)	QMF51A2-1R0 (1 AT)	QMF51A2-1R0BS (1 AT)	QMF61U1-1R0 (1 A)
16 & 18	F803	Fuse (Secondary) ⚠	QMF61U1-1R0 (1 A)	QMF51A2-R50 (500 mAT)	QMF51A2-R50BS (500 mAT)	QMF61U1-R50 (0.5 A)
16	R804	Resistor (Composition) (2.7 MΩ, 1/2 W) ⚠	QRC121K-275E	–	–	–
18	R809	Resistor (Composition) (4.7 MΩ, 1/2 W) ⚠	–	–	–	QRC121K-475E
7	20	Tuner and Switch P.C. Board Ass'y	TXX-121B-1	TXX-121C-1	TXX-121C-1	TXX-121B-1
7	11	Antenna Terminal	E03572-009C	E03572-010C	E03572-010C	E03572-009C
		Instruction Book	E30580-694A	E30580-694A	E30580-694A BS	E30580-694A
		Warranty Card	BT20032C (For U.S.A.) BT20025 (For Canada)	BT20029 (For Australia)	BT20013B	BT20032C (For U.S. Military Market)

NOTE: ⚠ SAFETY PARTS